JOINT STATEMENT OF THE 12TH MEETING OF THE WORLD SEMICONDUCTOR COUNCIL (WSC)
MAY 22, 2008
TAIPEI

The world's leading semiconductor industry associations – made up of the Semiconductor Industry Associations in China, Chinese Taipei, Europe, Japan, Korea and the US - today held the 12th meeting of the World Semiconductor Council (WSC). The meeting, held in Chinese Taipei, was conducted under the "Agreement Establishing a New World Semiconductor Council" approved at the third WSC meeting and signed on June 10, 1999, and amended on May 19, 2005.

The WSC meets annually to bring together industry leaders to address issues of global concern in the semiconductor industry with a goal of expanding the global market for information technology products and services, and promoting fair competition and technological advancement and sound environmental, health and safety practices. The WSC encourages cooperation in such areas as environment, safety and health practices, protection of intellectual property rights, open trade, investment liberalization, and market development. All WSC activities are guided by principles of fairness and respect for market principles consistent with the World Trade Organization (WTO) rules and with the laws governing the respective WSC member associations. The WSC reaffirmed that markets should be open and competitive. Antitrust counsel was present throughout the meeting.

The meeting was chaired by Frank Huang of Powerchip Semiconductor, who welcomed the delegates to the first meeting of the WSC to be held in Chinese Taipei. Regional delegations attending the meeting were chaired by Frans van Houten of NXP Semiconductors, Chang-Gyu Hwang of Samsung Electronics, Masashi Muromachi of Toshiba Corporation, Willem Roelandts of Xilinx and Zhongyu Yu of the Semiconductor Industry Association in China.

During the meeting, the following reports were given and discussed, and actions on these were approved:

Technology update

The WSC reviewed the general technology trends for semiconductor industry products, as outlined by the ITRS (International Technology Roadmap for Semiconductors) process. It confirms the continuation of Moore's Law (i.e. increasing component density by feature scaling) and it also identifies new technology challenges implied by functional diversification ("More than Moore"). These trends underline the growing importance of system-on-chip (SoC) and system-in-package (SiP) solutions.

The WSC received a report from the Semiconductor Industry Association in the U.S. which focused on broadening of market demand both geographically and in terms of end products away from traditional IT products toward consumer products.

Analysis of Semiconductor Market Data

The WSC reviewed semiconductor market reports covering important industry trends including market size and growth. The WSC observed that the long-term outlook for the industry

remains robust as advances in technology continue to bring benefits to consumers and businesses worldwide.

Continuing on the subject of technology and markets, the WSC welcomed the keynote address of Dr. Morris Chang, Chairman of tsmc and formerly Chairman of Semiconductor Industry Association in Chinese Taipei. Dr. Chang reviewed for the delegates six revolutionary changes in the semiconductor history, and offered insights and observations for the future.

Currency Fluctuations

The WSC discussed the impact of currency fluctuations on the industry, and no conclusions were reached.

Cooperative Approaches in Protecting the Global Environment

The WSC is firmly committed to sound and positive environmental policies and practices. The members of the WSC are proactively working together to make further progress in this area.

(1) PFC (Perfluorocompound) Emission Reduction

The global semiconductor industry is a very minor contributor to overall emissions of greenhouse gases. The industry is voluntarily reducing its PFC gas emissions. Each of the then members of the WSC committed to reduce absolute PFC gas emissions by at least 10% from a baseline year[1] by the year 2010. Industry output has increased substantially while emissions have been voluntarily reduced. The WSC members also actively share non-competitive information on abatement technologies and alternative chemicals that can aid in reducing PFC emissions. Since the start of the programme, companies represented at the WSC have devoted considerable resources to meet their PFC reduction goals and these investments are bearing fruit.

The Semiconductor Industry Association in China is currently determining the baseline year and when it will be feasible to join the emission reduction programme. It recently increased its participation in these activities by providing additional data of PFCs. In connection with this effort, the Semiconductor Industry Association in China announced to the WSC that its member companies had executed a letter of intent on PFC reduction.

More recently, all WSC members agreed to adopt the 2006 Intergovernmental Panel on Climate Change (IPCC) Methodology with 4th Assessment Global Warming Potential (GWP) 100 Values for use in data collection concerning PFC emissions. The chart of WSC Indexed PFC Emissions is attached as Annex 1.

(2) PFOS (Perfluorooctyl Sulfonates) Reduction

As part of the WSC's proactive approach to sound Environment, Safety and Health (ESH) practices, members of the WSC and the equipment/supplier trade association SEMI endorsed a plan at the May 2006 meeting which applies to both critical and non-critical applications of

[1] The base year for Semiconductor Industry Association in Europe, Japan and in the US is 1995, for Semiconductor Industry Association in Korea it is 1997 and for Semiconductor Industry Association in Chinese Taipei it is 1998* (1998* represents the average of 1997 and 1999 emissions)

perfluorooctyl sulfonate (PFOS) chemicals in semiconductor manufacturing. Very small amounts of PFOS compounds are critical ingredients in leading edge photoresists and antireflective coatings, materials used in the photolithographic process for imprinting circuitry on silicon wafers. Under the agreement, members of the WSC and SEMI committed to ending non-critical uses of PFOS and are working to identify substitutes for PFOS in all critical uses for which no other materials are presently available. The agreement also committed members of the WSC to collect and make available aggregated industry information every 2 years to provide a transparent communication of industry progress. All members of the WSC have expended significant resources to further understand and limit PFOS uses, evaluate wastewater treatment options, and conduct research and development to eliminate non-critical uses. Work continues to invent and develop potential PFOS substitutes for all critical uses in current and future semiconductor manufacturing. Further details on this global voluntary agreement and industry progress during the last 2 years will be posted at www.semiconductorcouncil.org.

The WSC is pleased to provide this biennial report of our progress to the voluntary commitments as attached in Annex 3.

The Semiconductor Industry Association in China recently joined the WSC organization. They are currently assessing the use of PFOS in semiconductor manufacturing in China. After concluding the evaluation they will endeavour to meet the WSC PFOS commitments.

(3) Energy Savings in semiconductor manufacturing

The WSC recognises that reducing energy consumption continues to be a central activity in the industry's environmental and sustainability practices worldwide. Reducing energy consumption reduces the need for energy production, resulting in corresponding environmental benefits. The WSC has established an energy conservation partnership with suppliers to the semiconductor industry (represented by SEMI) in a joint effort to achieve further energy-savings in semiconductor equipment.

(4) Quantitative Targets

The WSC members are pleased to announce that they have reached a voluntary agreement on expectation levels for normalized reductions of electricity (30%), water (45%) used in manufacturing, and waste generated (40%) by 2010 from the baseline of 2001. This follows a lengthy period of extensive evaluation of environmental performance indicators that reflect the levels of energy and water consumption by the semiconductor industry as well as the waste that it generates.

(5) Other Environment, Safety and Health Issues

The WSC has a great interest in addressing the global impact of ESH regulations on our industry and in ensuring that regulatory programs are technologically feasible, coordinated and effective in achieving environmental protection. The WSC believes that when ESH laws and regulations are necessary, they should be technologically feasible in achieving environmental protection. Examples of matters of interest include the Stockholm Convention PFOS discussions, the EU's REACH programme concerning chemical usage, the US PFAS legislation and California Global Warming law, as well as several regions' RoHS (Restrictions on Hazardous Substances)

regulations. The semiconductor industry has long recognized the importance of proactively protecting the global environment – as is demonstrated by our numerous efforts in this area.

Free and Open Markets

Multichip ICs

The 'Agreement on Duty Free Treatment of Multi-chip Integrated Circuits' between the then GAMS Members Chinese Taipei, Europe, Japan, Korea and the US entered into force in April 2006, and successfully brought customs and tariff treatment in line with technological progress ensuring multichip ICs can be traded in a duty-free environment.

The current WSC, which since 2006 includes the Semiconductor Industry Association in China, recommends that the GAMS work to expand the current geographic and product scope of this agreement. It calls upon all GAMS members to join this agreement and to consider pragmatic approaches to facilitate this objective. WSC recommends the inclusion of the MCP agreement into multilateral agreements such as the ITA, the Doha Round, such as in NAMA, or other multilateral Free Trade Agreements.

The WSC urges GAMS to continue to facilitate the growth of the semiconductor market by ensuring free and open markets by eliminating tariffs and non-tariff barriers for all semiconductor products – including new types of semiconductor products - by

- Eliminating tariffs and non-tariff barriers for these products through international agreements, including an eventual Multi-Component IC Agreement.
- Working with industry, among others in the HS framework, to include appropriate definitions for all existing and new types of semiconductor products in international customs legislation.

The WSC appreciates the willingness expressed by the GAMS members at the 2007 GAMS meeting to facilitate the inclusion of new types of semiconductor products into the HS convention and facilitating a zero duty regime for such products. WSC members are committed to continue to support this effort and seek further progress.

WSC affirms that this is a very important issue to the industry because multi-component ICs are a fast growing segment of the semiconductor industry.

In view of the high importance of this issue for industry, the WSC reconfirms

- All participants in the 2006 Multi-chip Agreement agree to a common definition for multi-component ICs.
- These members express a desire to engage in a constructive and cooperative effort with governments to discuss and agree on a viable scope for a definition that addresses government concerns related to this issue.

The WSC therefore requests GAMS members to create a joint GAMS-Industry initiative focusing on jointly resolving this issue of the semiconductor industry with the aim of taking a positive decision on the inclusion of an appropriate category of semiconductor products in the November 2008 WCO meeting and inclusion in the HS2012 Review.

Doha/WTO

The WSC re-confirms, as a founding principle, the importance of ensuring that markets be open and free from discrimination, and that the competitiveness of companies and their products be the principal determinant of industrial success and international trade. Governments and authorities should, therefore, insure

- full intellectual property protection,
- full transparency of government policies and regulations,
- non-discrimination for foreign products in all markets,
- a tariff- and barrier-free global environment for semiconductor products,
- an end to investment or regulatory restrictions tied to technology transfer requirements, and
- removal of unreasonable burdens on world commerce.

Semiconductors are the key enabling technology of the information technology revolution. They are key component of the growth and spread of the internet society. Access to advanced and affordable semiconductor products promotes economic development by increasing productivity and providing the infrastructure needed to compete in the digital age. Accordingly, it is vital that trade in this area remains as open as possible and that international rules and domestic regulations foster an open and competitive market.

The WSC continues to urge the members of the WTO to accelerate the work on the Doha Development Agenda Round of Multilateral Negotiations and bring it to a strong and positive conclusion. This is important to ensure continued world economic advancement and increase the standard of living of all peoples. By creating new market opportunities for industry, services and agriculture, the prospects for economic growth will increase, with positive effects on new jobs in developed and developing economies alike. In furtherance of the core principles of our industry and those enunciated by our respective Governments and Authorities, we seek in the Doha Round and as appropriate in the continuing work of the WTO: the elimination of tariffs and all non-tariff barriers on all semiconductor industry products and semiconductor equipment and materials. To this end, the WSC agreed to issue a Statement of Support for Doha WTO Negotiations (see attached Annex 5).

Rules of Origin

The WSC strongly supports, for semiconductor products, the principle of harmonized rules of origin for trade remedies and for customs purposes. Further, WSC strongly supports rules of origin for semiconductor products that are defined by manufacturing processes (diffusion or assembly) and not defined on a value added (VA) basis or tariff classification change. In addition, WSC reconfirms its position stated in the WSC White paper on antidumping of May 2003 that the origin criteria for antidumping procedures should be wafer fabrication (diffusion) for monolithic ICs.

In accordance with these principles, the WSC calls upon GAMS to support the position of the WSC members on rules of origin within the framework of the WTO to the extent that work on this subject proceeds, and to ensure the adoption of rules suitable for the semiconductor industry as outlined above.

WSC further calls upon GAMS to find solutions exempting semiconductor products industry from labeling and origin marking.

Levies

The WSC reiterates that semiconductors are the building blocks of the modern information technology economy. The semiconductor industry is characterized by rapid innovation that allows us to offer our customers ever higher functionality at ever reduced costs. Many of our products contribute directly to enhanced economic productivity. Copyright levies on digital media have the opposite effect by increasing the taxation burden as the functionality of a device increases, thereby erasing the cost savings that can be passed on to the consumer.

Semiconductor Social Contribution & Green IT Int'l Symposium

The WSC recognized that the semiconductor industry provides innovative products that can significantly improve energy efficiency throughout society.

The semiconductor contribution to a cleaner environment can be understood at four levels: 1) the manufacture of the semiconductors, 2) the energy used by the semiconductor device itself, 3) the enabling of electronics and other products that use less energy, and 4) allowing societal changes that save energy. As noted above, the WSC members aim to reduce the energy consumed in their manufacturing facilities by 30% until 2010 from a 2001 baseline. The continued shrinking of the feature sizes on each semiconductor chip has already resulted in huge gains in functionality per unit of energy in the device itself. Semiconductor products have enabled energy savings in appliances, consumer electronics, computers, automobiles, and other end products. As the foundational technology behind computing, sensors, wireless communications and the internet, semiconductors can lead to societal changes that reduce energy consumption in the transportation of goods and people, in the heating and cooling of buildings through smart meters, and in the efficient utilization of the electric grid by utilities. Due to these applications, the semiconductor industry can further contribute to the prevention of global warming, as these energy saving end products are utilized worldwide.

Consequently, the WSC recognizes the important role of the semiconductor industry to help create a green society and will continue to evaluate how the industry can increase its positive contributions to society.

As a further commitment of the WSC to these important objectives, the WSC Chair will speak at the Green IT International Symposium to be held in Tokyo, Japan, on May 29, 2008 to highlight the industry's commitment to a green society. A summary of the main points of the WSC Chair's presentation is provided at Annex 2.

UN Millennium Development Goal

The WSC supports the UN Millennium Development Goal of expanding "the benefits of new technologies, especially information and communications." This goal furthers the other UN Millennium Development Goals related to poverty eradication, environmental sustainability, education and health care. As a result of the semiconductor industry's relentless efforts to reduce the cost of semiconductor technology, information and communication technology (ICT) has become more affordable for governments and people in developing nations. In addition, many

semiconductor companies are now developing products to address the particular needs of markets in developing countries. The tremendous advances in technology solutions can be more quickly realized through public policies and increased funding mechanisms that enable developing nations to take advantage of affordable computing.

The WSC recommends that their governments and authorities continue to support policies that further the UN Millennium Development Goal related to ICT. These policies include: 1) working through the World Bank and other international organizations to support programs that will provide the infrastructure necessary for developing countries to expand their information and communications networks; 2) encouraging developing nations to join the WTO Information Technology Agreement and thus eliminate tariffs that drive up the cost of IT products; 3) encouraging developing nations to lower any internal taxes on information or communications products and services; 4) providing expertise to help developing countries adopt rational telecom regulatory frameworks that promote competition by, for example, allocating adequate spectrum to innovative technologies, and lower the costs of telecom services; and 5) utilizing their foreign aid agencies to help developing countries purchase computer and communications equipment for education and health care.

Effective Protection of Intellectual Property

Semiconductor producers invest a very high percentage of their revenues in R&D and the intellectual property (IP) that results is the lifeblood of these companies. Failure to adequately protect IP is damaging to the semiconductor industry and ultimately impedes the technological progress that has benefited consumers around the world. The WSC discussed the activities of the IP Task Force, which the WSC created in 2004 to review IP issues relevant to semiconductors around the world.

The WSC reiterates its call for all governments/authorities to improve effective enforcement measures for protection of IP rights within their jurisdictions. WTO members are obligated under Article 41 of the TRIPS Agreement (Agreement on Trade-Related Aspects of Intellectual Property Rights) to ensure that enforcement procedures of IP rights “are available under their law so as to permit effective action against any act of infringement of intellectual property rights covered by this Agreement." The WSC appreciates the continued efforts in countries where enforcement is a substantial concern, to achieve further deterrence of IP violations, the WSC encourages stepped up efforts by the governments of these countries to review and enhance their IP enforcement measures including remedial measures under civil law and, where appropriate, criminal proceedings as well as further improvements in transparency regarding their enforcement efforts. In those jurisdictions where criminal enforcement actions are only taken when the amount of counterfeit goods are above a certain threshold amount, governments should substantially lower or eliminate the criminal threshold amount for semiconductors and other intermediate goods where the damage to downstream industries is high.

As semiconductor devices become more highly integrated and operate at significantly faster speeds, more and more of the complex functionality of such devices is implemented in software. It thus becomes imperative for all countries to provide meaningful patent protection for software inventions so that they receive the same level of patent protection as inventions implemented in hardware. The WSC again requests that its members discuss with their governments and authorities, if meaningful patent protection for software is not available, the possibility of expanding the scope of protection to allow the software invention patent owner to enforce its patent against all types of infringers, including software manufacturers and distributors.

Counterfeit products are an increasing problem throughout the world and the semiconductor industry is no exception to this growing threat. Semiconductor product counterfeiting is a serious and growing risk for the world market. In a recent joint custom's operation 360 000 counterfeit ICs bearing over 40 different trademarks were seized at a handful of border controls over a three week time frame. The impact goes beyond IP or trademark infringement of semiconductor companies. Together with an increase in the number of semiconductors being used in an end-product, proliferation of counterfeit semiconductor product in today's market creates risks to the safety and health of the consumer.

The WSC encourages GAMS Members to work with their countries' semiconductor industry, traders and customers, associations, and government agencies to promote better communication in the fight against semiconductor counterfeiting. As the recent anti-counterfeiting initiative shows, coordination among semiconductor industries and GAMS Members can provide an effective first response to the global counterfeiting operations. WSC encourages this kind of inter-governmental coordination. The WSC is committed to strengthened IPR enforcement that results in increased protection of consumers around the world.

Protection of intellectual property rights and encouragement of innovation are crucial to the continued growth and advancement of the global semiconductor industry. These depend heavily on the quality of patents issued by governments and authorities around the world. The WSC previously has called on the GAMS to ensure adequate funding of domestic patent offices as a way to improve the timely and accurate issuance of patents. The WSC recognizes, however, that budget is only one aspect of patent office function that can affect patent quality. Accordingly, the WSC has instructed an IP Task Force to collect and study relevant data on patent examination, issuance and quality, and to explore best practices for improving patent quality and harmonization around the world.

Membership

The WSC today represents the leading countries/regions in the semiconductor industry. The WSC hopes and expects that the semiconductor industry associations of countries or regions with major presence and importance in the world semiconductor industry will join the WSC. To this end, the WSC has encouraged cooperation with the semiconductor industry associations in India and Singapore with a view to a possible future membership.

Report to Governments/Authorities

The results of today's meeting will be submitted by representatives of WSC members to their respective governments/authorities for consideration at the annual meeting of WSC representatives with the Governments/Authorities Meeting on Semiconductors (GAMS) to be held in September 2008 in Lisbon, Portugal.

The WSC's report will include the following:

(1) An updated report on semiconductor market data prepared by industry experts;

(2) Recommendations on trade-related issues, including Multichip and Multicompenent ICs, ITA, Doha/NAMA and rules of origin, levies, intellectual property protection, technological standards and use of semiconductor for energy savings; and

(3) Reports on cooperative ESH activities, and recommendations regarding the

development of regulations.

Next Meeting

The next meeting of the WSC will be hosted by the Semiconductor Industry Association in China in Beijing in May 2009.

Key Documents and the WSC Homepage

Annexes:

1. PFC Emission Reduction Announcement and Data
2. Statement on Social Contribution by Semiconductors
3. WSC update on the voluntary PFOS initiative
4. WSC letter to World Bank on Millennium Development Goals
5. WSC Statement of Support for Doha WTO Negotiations

All key documents related to the WSC can be found on the WSC website, located at: http://www.semiconductorcouncil.org

Information on WSC member associations can be found on the following website:

Semiconductor Industry Association in Europe: *http://www.eeca*.eu

Semiconductor Industry Association in China: *http://www.csia.net.cn*

Semiconductor Industry Association in Chinese Taipei*: http://www.tsia.org.tw*

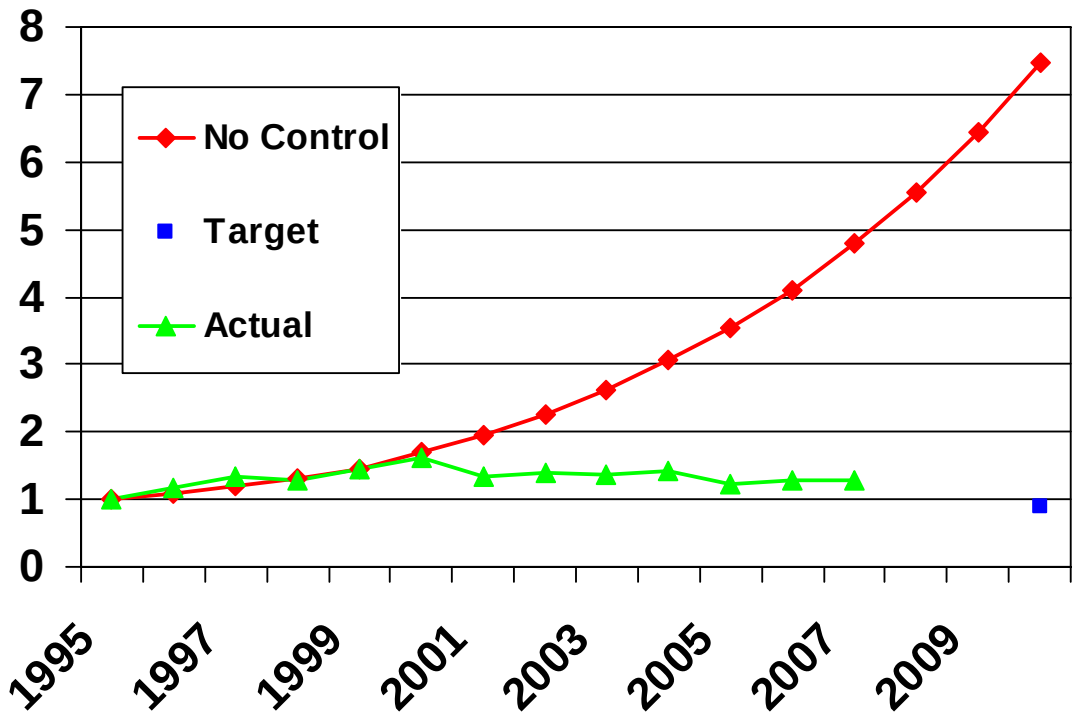
Semiconductor Industry Association in Japan: *http://semicon.jeita.or.jp/en/*

Semiconductor Industry Association in Korea: *http://www.ksia.or.kr*

Semiconductor Industry Association in the US *http://www.sia-online.org*

Annex 1:

PFC Emission Reduction Announcement and Data



Annex 2:

The Semiconductor Industry Contribution to Saving Energy and Protecting the Global Environment :

1.WSC Activity

A) Semiconductors produced by WSC member companies are at the heart of most of the electronics end products used in daily life, and the semiconductor has become the fundamental technology sustaining the information society. It is obvious that nobody could enjoy a modern lifestyle without semiconductors.
B) The widespread use of semiconductors across society creates an opportunity to have a big impact in limiting global warming.
C) While the semiconductor industry's energy consumption is relatively small compared to the other global industries, the semiconductor industry continues to work diligently to reduce its energy consumption.
D) The WSC recognizes that everyone has a social responsibility to save energy, and will continue its activities to protect the environment worldwide. Reducing energy consumption reduces the need for energy production, resulting in corresponding environmental benefits.

2. Contribution of the Semiconductor Industry

The semiconductor contribution to a cleaner environment can be understood at four levels – 1) the manufacture of the semiconductors, 2) the energy used by the semiconductor device itself, 3) the enabling of electronics, and 4) other products that use less energy, and allowing societal changes that save energy.

A) the manufacture of the semiconductors

■PFC

- ☐Overall, the semiconductor industry is not a significant contributor to emissions of global warming gases. This fact has not prevented the global industry from establishing proactive voluntary emissions reduction goals.
- ☐The WSC has adopted a position paper on PFC emissions reduction goal. This agreement exhibits a proactive initiative of the world semiconductor industry toward responsible stewardship through international cooperation.

■Quantitative Targets

- ☐The WSC promotes energy savings and resources conservation programs by setting the common metric and definition.
- ☐The WSC has a common global metric for a global data collection on the parameters of industry electricity and water usage and of industry waste normalized on the basis of cm2 of silicon.
- ☐The WSC has also agreed in 2008 to a common definition of expectation levels for the reduction of electricity, water and waste from the semiconductor production process on a global basis. These are
  - ▪45% normalized reduction in water usage from 2001to2010;
  - ▪40% normalized reduction in waste from 2001 to2010; and
  - ▪30% normalized reduction in electricity usage from 2001 to 2010
- ☐The WSC will continue to seek future improvements and savings opportunities.

■Green Fabs

- ☐The WSC recognizes that the semiconductor industry has a small proportionate share of energy consumption in comparison to other global industries.
- ☐The industry is nevertheless very focused on continually innovating to achieve further energy reductions where possible. Through the WSC and our member associations, partnerships with our suppliers, international research consortia, and the International Semiconductor Environmental Safety and Health conference, the global industry develops, shares, and implements best practice energy performances in our facilities.

The WSC is the industry to pursue reduction of the global warming gas emission through execution of “reduction of power consumption”, “establishment of Green FABs”, and “reduction of use of chemical materials (PFC)”.

B) Energy used by semiconductor devices

- Semiconductor technology advances have allowed higher functionality and greater convenience to society while enabling the industry to improve the energy efficiency of its products in two important ways. Firstly, further miniaturization of circuits on a chip, allows ‘More Moore’ and leads to “lower power” and “higher functionality”. Secondly, in a trend called ‘More than Moore’, additional types of circuits such as sensors converge on a semiconductor and can lead to energy saving products. The semiconductor industry seeks further contributions to environment as the industry seeks new ways to increase functionality per unit of energy.

C) Enabling of electronics and other products that use less energy

- Semiconductors are at the heart of electronics systems from computers to communications to consumer electronics, and provide opportunities to save energy in end equipment. Example of semiconductor enabled energy savings include variable speed motors for appliances and heating/ventilation/air-conditioning systems, power management chips in computers, solid state memory replacing disk drives, and engine controllers in automobiles. The utilization of functions of semiconductors like software built in micro components and multiple functions achieved by high integration lead to savings as well.
- Such semiconductor contribution is promoted by cooperation between semiconductor companies and industries of end-products.

D) Allowing societal changes that save energy

- As the foundational technology behind computing, sensors, wireless communications, and the internet, semiconductors can contribute to minimizing energy consumption throughout society. Examples include allowing more efficient heating and cooling of buildings through smart meters, encouraging off-peak usage of electricity by offering lower prices during those times, developing an intelligent vehicle highway system, and promoting changes in life style like telecommuting, .

3. Corporate Social Responsibility

A) The WSC contributes to its members’ corporate social responsibility goals by promoting a future social system in which ubiquitous, energy saving products reduce the human impact on the global environment.
B) The WSC supports national projects aiming to energy saving through innovative semiconductor technology.

4. The role of governments and authorities

Governments and authorities can provide an environment that encourages consumers and businesses take advantage of energy efficient semiconductors and thereby lower carbon emissions. Examples of policies that are occurring in the WSC regions are:

A) Supporting investments in research and development on energy efficient semiconductor applications and on finding a next generation – beyond CMOS - logic switch that is energy efficient.
B) Building consumer awareness of energy efficient technologies and practices, and of the environmental, health, social and economic benefits that these practices deliver.
C) Providing tax incentives and energy utility rebates for manufacturers that develop products that meet high standards for energy efficiency and for consumers and businesses to invest in energy efficient products.
D) Creating government-industry partnerships to draft effective standards and share best practices that will increase energy efficiency and reduce energy use.
E) Ensuring that government leads by example by only purchasing energy efficient products, for example, government data centers that uses best available technology to save energy.

5. Conclusion

The semiconductor industry is

i. providing products to drive energy saving of end-equipment and the social system
ii. advancing semiconductor technology to achieve future dramatic energy savings.
iii. achieving healthy growth while being conscious that its products contribute to the Green society

Annex 3: WSC Statement on PFOS

As part of the WSC's proactive approach to sound Environment, Safety and Health practices, members of the WSC and SEMI endorsed a plan at the May 2006 meeting which applies to both critical and non-critical photolithography applications of perfluorooctyl sulfonate (PFOS) chemicals in semiconductor manufacturing. Very small amounts of PFOS compounds are critical ingredients in leading edge photoresists and antireflective coatings, materials used in the photolithographic process for imprinting circuitry on silicon wafers. Under the agreement, members of the WSC and SEMI are committed to ending non-critical uses of PFOS and are working to identify substitutes for PFOS in all critical uses for which no other materials are presently available.

PFOS continues to perform an important role in semiconductor manufacturing. Photoresists (resists) and antireflective coatings (ARCs) are used to form the patterns that are then transferred into the semiconductor chip to form the tens of millions of conductors, insulators, and transistors that make up a single integrated circuit. While PFOS remains a critical component of these resists and ARC's the industry has been able to gradually reduce or eliminate PFOS in non-critical uses.

Some of the replacements for PFOS which have been found and implemented in current manufacturing have come from the perfluoroalkyl sulfonates (PFAS) class of chemicals. PFAS has been utilized in this area as a replacement material due to the functionality of its chemical properties.
The WSC is pleased to provide this biennial report of our progress to the voluntary commitments.

In accordance with the voluntary commitment, the global industry has in most cases eliminated the use of non-critical PFOS. The Semiconductor Industry Associations in Europe, Japan and Korea eliminated non-critical uses during 2007. In 2007, the Semiconductor Industry Association in the U.S, which had expected to be free of non-critical PFOS usage, identified some relatively small, non-critical applications which had not yet been requalified with substitute materials. It is expected that these small uses will be eliminated before the end of this year. The Semiconductor Industry Association in Chinese Taipei also had ended all non-critical PFOS.

- By December, 2006 all regions confirmed they send solvent waste containing PFOS to incineration. These waste management practices insure the highest level of treatment and destruction to reduce the quantity of PFOS that may be released to the environment.

- WSC and SEMI successfully engaged in a worldwide PFOS data collection effort to set a 2005 baseline. The attached 2005 mass balance is based on expert knowledge of current manufacturing processes, equipment design and operations. It reflects conservative assumptions and may overestimate releases of PFOS to the environment.

- The WSC undertook a comprehensive survey and evaluation of potential wastewater discharge control technologies (a list of references can be found in Attachment 2).are attached). Researchers have evaluated various methods to remove or destroy PFOS in wastewaters. Some of the tests showed promising results in a small, bench scale laboratory environment. However, the current performance and economic viability of the treatment technology is not appropriate for

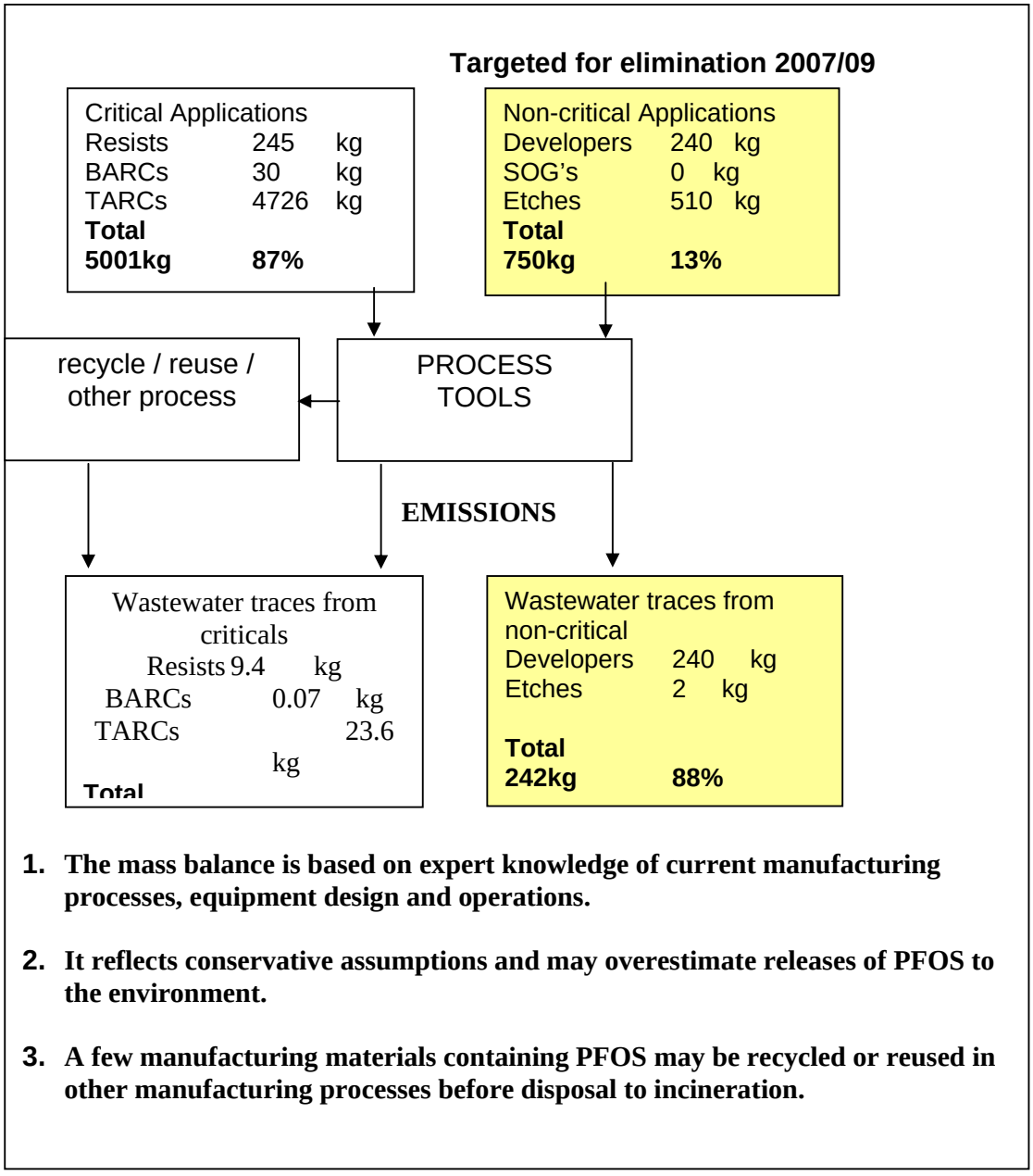
semiconductor manufacturing. However, no new technology has emerged at this time which demonstrates technological feasibility, treatment effectiveness and economic viability. Furthermore, while incineration is an effective treatment method for solvent waste it is generally considered to be an inefficient use of energy for low PFOS concentration, high volume wastewater from the industry.

- WSC and SEMI members have undertaken significant research and development activities in an attempt to work towards PFOS substitution. The elimination of PFOS in non-critical uses is one example of success in this area. However, the unique chemical properties of PFOS used in all critical uses (i.e photolithography) prevent the adoption of non-PFOS chemistries. The industry will require additional time to invent and develop potential PFOS substitutes for current and future semiconductor manufacturing.

The Semiconductor Industry Association in China recently joined the WSC organization. They are currently assessing the use of PFOS in semiconductor manufacturing in China. After concluding the evaluation they will endeavour to meet the WSC PFOS commitments.

Attachment 1 to Annex 3:

PFOS Mass Balance
WSC Baseline 2005



1. **The mass balance is based on expert knowledge of current manufacturing processes, equipment design and operations.**

2. **It reflects conservative assumptions and may overestimate releases of PFOS to the environment.**

3. **A few manufacturing materials containing PFOS may be recycled or reused in other manufacturing processes before disposal to incineration.**

Attachment 2 to Annex 3: PFOS Waste Treatment References

[1] T. Yamada and P.H. Taylor, "Laboratory Scale Thermal Degradation of Fluorocarbon Materials," Final Report, DuPont Chemical Solutions Enterprise, UDR-TR-04-00025, June 2004.

[2] Appendix III, Semiconductor Photolithography Mass Balance Narrative, EPA docket control number OPPTS 50639.

[3] D. Lampert, "Removal of Perfluorooctanoic acid and Perfluorooctane sulfonate from AMD Wastewater by Ion Exchange," Thesis presented to the Graduate School University of Texas at Austin, May 2003.

[4] D. J. Lampert, M.A. Frisch, and G.E. Speitel, Jr., "Removal of Perfluorooctanoic acid and Perfluorooctane sulfonate from Wastewater by Ion Exchange," *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management*, 11 (2007) 60-68.

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Annex 4: WSC Letter to World Bank

May 22, 2008

The Honorable Robert B. Zoellick
President of the World Bank Group
The World Bank
1818 H Street, NW
Washington, DC 20433 USA

Dear Mr. Zoellick:

The World Semiconductor Council (WSC) – made up of the Semiconductor Industry Associations in China, Chinese Taipei, Europe, Japan, Korea and the US – is writing to encourage continued World Bank efforts to bring the benefits of information technology to developing countries.

At its meeting in Taipei on May 22, the WSC issued the following joint statement :

> "The WSC supports the UN Millennium Development Goal of expanding "the benefits of new technologies, especially information and communications." As a result of the semiconductor industry's relentless efforts to reduce the cost of semiconductor technology, information technology has become more affordable for governments and people in developing nations. In addition, many semiconductor companies are now developing products to address the particular needs of markets in developing countries. The tremendous advances in technology solutions can be more quickly realized through public policies and increased funding mechanisms that enable developing nations to take advantage of affordable computing."

The World Bank is an important leader in financing the infrastructure necessary for developing countries to expand their information and communications networks. In addition, World Bank support can mobilize people and resources to add new communities in developing nations to the worldwide web.

The members of the WSC intend to encourage our governments and authorities to work through international organizations such as the World Bank, as well as through their own international aid agencies in support of expanding the benefits of information technology.

Thank you for your attention to this important global issue. Our members remain available to you in this endeavour.

Sincerely,

Chair of the WSC

Annex 5:

WORLD SEMICONDUCTOR COUNCIL
STATEMENT OF SUPPORT FOR DOHA WTO NEGOTIATIONS
May 22, 2008

The leading semiconductor industries of the world, meeting as The World Semiconductor Council (WSC) and consisting of the Semiconductor Industry Associations of China, Chinese Taipei, the European Union, Japan, Korea and the United States, issue this statement to encourage a strong, positive result in the current WTO Doha Development Agenda Round of Multilateral Negotiations.

Semiconductors are a core technology for the 21st century, enabling enhanced productivity and economic development and growth around the world. The world semiconductor industry is of vital importance in both technological and economic terms in advancing the information age – semiconductors are the foundation upon which the information and communication technology industry is built. They are making possible continuing revolutionary progress in all facets of life, including communications, transportation, health care, scientific research, education and commerce, and are critical to raising global standards of living and contributing to sustainable economic growth.

We note that our respective governments and authorities -- the Governments and Authorities Meeting on Semiconductors (GAMS) -- have themselves achieved virtually barrier-free trade in semiconductors, including the elimination of tariffs. They jointly seek a world environment devoid of barriers to trade and investment and support initiatives in the World Trade Organization (WTO), including the Information Technology Agreement (ITA), to achieve this objective. The ITA has been a major success since the establishment of the WTO. World exports of ITA products over the its first 10 years more than doubled in dollar terms, accounting for a substantial portion of world merchandise exports.

In furtherance of the core principles of our industry and those enunciated by our respective Governments and Authorities, we seek in the Doha Round and as appropriate in the continuing work of the WTO:

1. The elimination of tariffs and all non-tariff barriers on all semiconductor industry products and semiconductor equipment and materials through relevant international agreements such as NAMA, ITA and Electronic Sectoral Agreement;
2. Fair and effective antidumping or countervailing measures (see the 2003 WSC Position Paper);
3. The adoption of harmonized rules of origin, which recognize the specific requirements of the semiconductor industry. These harmonized rules of origin should be based on manufacturing operations (such as diffusion or assembly) with one rule to be applied for trade remedies and another rule to be applied for other purposes, consistent with the principle of decoupling. They should not be based on a value add solution;
4. Continued and improved protection of intellectual property rights, including efforts to discourage counterfeiting of semiconductors; and
5. The avoidance of product standards becoming barriers to trade.

By creating new market opportunities, a successful conclusion of the Doha Round will enhance world growth and increase the standard of living of all peoples.

Semiconductor Industry Associations in China, Chinese Taipei, Europe, Japan, Korea, and the United States

WSC Website: www.semiconductorcouncil.org