Public

November 8, 2021

Matthew S. Borman
Deputy Assistant Secretary for Export Administration
United States Commerce Department
1401 Constitution Ave., NW
Washington, DC 20230

Re: [Docket Number 2021-0036] Notice of Request for Public Comments on Risks in the Semiconductor Supply Chain

Dear Secretary Borman:

We appreciate the Biden Administration and the Department of Commerce's continued support in addressing the semiconductor shortage in the United States. As we have witnessed over the last two years, semiconductors are critically important to a broad range of manufacturers and our reliance will only continue to grow as we make investments in the technologies that power our products. We welcome the opportunity to provide more insight into the impact that the semiconductor shortage has caused on our U.S. manufacturing plants. Should you need additional information regarding this submission, please feel free to contact Shannon Kiely Heider, Director of International Government Relations at Cummins Inc, at Shannon.kiely-heider@cummins.com or by phone at (202) 695-6371.

Response to questions posed to intermediate users and end users of semiconductor products or integrated circuits (Section 2):

A. Identify your type of business and the types of products you sell:

Cummins Inc., a global power leader, is a corporation of complementary business segments that design, manufacture, distribute and service a broad portfolio of power solutions. The company's products range from diesel, natural gas, electric and hybrid powertrains and powertrain-related components including filtration, aftertreatment, turbochargers, fuel systems, controls systems, air handling systems, automated transmissions, electric power generation systems, batteries, electrified power systems, hydrogen generation and fuel cell products. These products use electronic controllers (ECMs), control modules and sensors which utilize integrated circuits. In addition, other critical components used on Cummins products like actuators, turbos, electronic filtration, aftertreatment controls for EPA regulations also utilize integrated circuits.

B. What are the general applications for the semiconductor products and integrated circuits that you purchase?

Cummins is an engine and powertrain manufacturer that purchases electronic devices like electronic control modules (ECMs), sensors, actuators, dosers, and motors, which use a variety of semiconductor related components. These are purchased from our key tier-1 suppliers. These suppliers rely on their own key tier-2 semiconductor suppliers. Key applications of this technology are utilized for controllers used to electronically regulate fuel injection, emissions, etc. Integrated circuits are also utilized in electronics controls of our Power Generation Gensets as well as to control automotive and industrial power transmission applications.

C. What are the primary disruptions or bottlenecks that have affected your ability to provide products to customers in the last year?

Cummins has a manufacturing and supplier network spanning throughout the world. Spiking COVID-19 case counts globally and restrictions in various countries has clearly constrained the supply chain from a labor, raw material, and production capacity perspective. Additionally, the surge in demand for Cummins on-highway, power generation and mining products has resulted in material planning constraints to the suppliers. The lack of incremental surge capacity at the tier-1 and tier- 2 suppliers has constrained the ability of Cummins to provide products to its customers. Several other factors, including the Texas weather events, port congestions, and freight capacity with shipping companies has only continued to add further disruptions. In summary, dependance on the lengths of our supply chains from Asia to US, combined with above variables has severely affected our ability to maintain manufacturing for the current demand for our customers. In response to the above disruptions, Cummins has not accepted orders of products from customers which use certain semiconductor chips whose availability is heavily constrained.

F. Is your organization considering or carrying out new investments to mitigate semiconductor sourcing difficulties? Explain.

Cummins is carrying out the following investments to mitigate our semiconductor and supply chain shortages:

- Subject Matter Experts investments – Cummins is investing in more hardware and component engineers with expertise to help recommend alternative components.
- Building engines and other products without electronics and upfit at a later time.[1]
- Purchasing the critical shortage components or its substitutes through various channels at a premium cost

[1] Subject to coordination and agreement with applicable regulatory authorities where appropriate.

- Engineering investments to redesign controllers with components that are more readily available, etc.
- Strategic stock: Planning for strategic stock buildup of key finish goods and sub-components when supply constraints are reduced

H. What semiconductor product types are most in short supply and by what estimated percentage relative to your demand? What is your view of the root cause?

Microprocessors products are in short supply. This was initially caused by lower production rates forecasted for 2019 and was then exacerbated by the Texas winter storm and COVID related disruptions across the globe.

ASICs, power and other drivers, mosfets, voltage regulators and other commodity semiconductors, have also been impacted by lower forecasting and COVID disruptions.

Specialty Integrated Circuits have been the most in short supply leading to increased delays in productions of on-highway automotive trucks (Class 5 - Class 8).

I. Has your organization changed its material and/or equipment purchasing levels or practices in the past three years?

Yes, Cummins has managed its purchasing levels in response to the demand forecast changes. One of the highest volume products for Cummins are the On-highway engines used in Class 5-Class 8 trucks. We have witnessed very dramatic demand changes over the last two years. During Q2 of 2020 with onset of COVID-19, we witnessed dramatic demand drops, which then followed by a steep recovery in Q3 2020 to a level equal to that of 2019. Yes, we have developed plans to implement strategic safety stock for critical electronic components, where impact has been severe. In addition, we have created an aggregated global demand view to ensure better forecasting and communication of the demand changes to our tier-1 and tier- 2 suppliers.

J. What single change (and to which portion of the supply chain) would most significantly increase your ability to purchase semiconductors in the next six months?

We believe increasing capacity for more tier-2 semiconductor and key electronic tier-1 suppliers will allow us to build more finished products. Additionally, increased allocations for semiconductors applied in automotive space should be prioritized over consumer electronics capacity.

K. What percentage of your orders are fulfilled by distributors versus through direct purchase orders to semiconductor product manufacturers?

Cummins purchases products mostly from tier-1 suppliers for components like ECM's, sensors, and actuators. These tier-1 suppliers in turn placed orders directly to the semiconductor product manufacturers. This year has been unique, and in special circumstances Cummins has purchased products from distributors at a premium price.

L. For the semiconductor products your organization purchases, how long (in months) are the typical purchase commitments? How, if at all, do your organization's purchase commitments differ for products in short supply?

We provide firm orders (this ranges from 2 weeks to 12 weeks depending on product) and forecast (52 weeks) to our suppliers that is refreshed on a weekly or monthly basis. While the forecast is not a firm commitment, we do have agreements with our tier-1 suppliers to use that guidance to secure semiconductor components.

M. Has your organization faced "de-commits" (defined as a notification from a supplier that expected or committed supply will not be delivered in the agreed-upon time and quantity) in recent months? If this is a significant issue, please explain (e.g., nature of product, supplier, impact).

Yes, for both production orders and for "Last Time Buy (LTB)" orders. Predominantly the decommits have been due to Force Majeure events but have also had cases where the root cause is still not understood.

Again, on behalf of Cummins Inc., we appreciate the opportunity to comment on this important issue and we look forward to working with all stakeholders to help solve critical supply chain issues facing manufacturers.

Regards,

M. Shannon Kiely Heider
Director, International Government Relations