

Global Stakeholder Primer: The Semiconductor Industry & COVID-19

In response to the global COVID-19 pandemic, the semiconductor industry is focused on ensuring the health and safety of its workers and the continuity of its research, design, and manufacturing operations. Semiconductors support vital parts of the global economy, critical infrastructure, and national security, and they are at the heart of many breakthrough technologies being used to combat this health crisis.

As government authorities craft public health measures to battle the COVID-19 pandemic, including mandatory business closures, **we call on governments to specify semiconductor industry operations as “essential infrastructure” and/or “essential business” to allow continuity in operations of an industry that underpins vital sectors of the economy.**

Semiconductors as “Essential Infrastructure” and/or “Essential Business”

Semiconductors are a key enabling technology of electronic products critical to virtually all sectors of the economy, including healthcare and medical devices, telecommunications, energy, finance, transportation, agriculture, and manufacturing. They are essential components of the technologies that control critical infrastructure, such as water systems, the energy grid, and communication networks. Semiconductors also underpin the IT systems that enable remote work and access to essential services across every domain, including medicine, finance, education, government, food distribution, and more. Semiconductor and related supply chains will be necessary to support the greater range of services that will be digitized in the coming weeks and months. Electronics supply chains are complex with components undergoing extensive qualification tests before being incorporated in a final electronic product so semiconductor shortages created by operating restrictions in one region often cannot be readily made up by production in other regions.

We therefore call on governments at all levels – central, states/provinces, and localities– to define the semiconductor industry and its supply chain as “essential infrastructure” and/or “essential business,” by specifying that semiconductor businesses:

- Are part of the supply chain of “essential goods”
- Supply products that allow people to work from home
- Supply other essential businesses with the support or supplies necessary to operate

This guidance will help ensure the continuity of semiconductor operations and incident response amidst COVID-19-related restrictions, including the appropriate movement of critical infrastructure workers within and between jurisdictions.

Semiconductor “Cleanroom” Operations Minimize Risk of Transmission

Semiconductor industry cleanroom operations minimize the risk of virus transmission due to higher levels of automation and the cleanroom environment on the factory floor. Cleanrooms, which can cover thousands of square meters, are specially constructed facilities where contaminants, including airborne particulates, are eliminated through specialized filtration and tight controls of air flow, air pressure, temperature and humidity. Strict rules and procedures are followed to prevent contamination. Workers that operate in cleanrooms must enter and leave through airlocks, and wear full protective clothing, including hoods, face masks, gloves, boots, and coveralls. While ambient air in a typical urban area contains 35 million particles per cubic meter in the size range of .5 micrometers, the highest-level cleanroom will have 0 particles of that size, and a maximum of only 10 particles per cubic meter in the size range of .1 micrometer.¹ For reference, the average size of the COVID-19 microbe is .125 micrometers. These strict controls and conditions position semiconductor production facilities to be more resistant to the impact of COVID-19.



Semiconductor cleanrooms are highly automated and require stringent “clean” protocols. Workers wear full protective clothing including hoods, face masks, gloves, boots and coveralls.

Measures and Best Practices to Ensure Worker Health & Safety

The semiconductor industry is willing and able to take all necessary steps to ensure workers remain healthy and safe and to assist in the effort to battle the global pandemic. Measures that many companies have taken in affected areas around the world include:

- **Strict controls on travel and movement of employees between facilities**
Even before shelter-in-place orders, many companies suspended all travel to affected areas and restricted movement of employees between in-region facilities.
- **Reducing on-site workforce**
Companies are prioritizing telework, minimizing non-essential meetings or group activities, and implementing work shifts to reduce number of staff physically present at one time to 50% or less.
- **Quarantines for employees who traveled abroad or showed cold/flu symptoms**
Employees who have traveled to affected areas or shown symptoms are prohibited from entering company premises unless undergoing a 14-day quarantine

¹ A Basic Introduction to Clean Rooms

<https://www.cedengineering.com/userfiles/HVAC%20Design%20for%20Cleanroom%20Facilities.pdf>

- **Mandatory daily health declarations**
Employees are required to take their temperature and complete an online health declaration on a daily basis.
- **Requirements for all employees to wear protective masks**
Many companies in affected areas are requiring all employees to wear protective face masks on all company premises, including shuttles.
- **Regular sanitation and disinfection practices**
Hand sanitizers provided at site entrances and relevant areas, and sanitation and disinfection processes carried out on a regular basis within shuttles, site lobbies, cafeterias, and other common spaces.
- **Social distancing**
Social distancing best practices are implemented on production floors, office meeting rooms, and cafeterias.
- **Heightened visitor entry restrictions to company facilities worldwide**
Some companies have restricted entry of all visitors or non-essential personnel to their facilities.
- **Establishing dedicated leadership teams comprised of medical & safety experts**
These dedicated teams work to safeguard the well-being of employees and minimize the spread of infection. They also collaborate with local governments and public health organizations.

Industry Experience in COVID-19 Affected Areas

Many central and local governments have recognized the strategic importance of the semiconductor industry and prioritized the uninterrupted operations for their domestic companies and suppliers in the midst of mandated business closures. Examples include:

- **China:** Semiconductor design, manufacturing, packaging and testing facilities throughout the country were allowed to operate non-stop following certain worker safety protocols. These facilities were able to maintain high-capacity utilization rates throughout the nation-wide lockdown.
- **South Korea:** Despite limited closures to sanitize and disinfect facilities, most operations continued uninterrupted. South Korea's chip exports grew by 9.4% in February 2020.
- **United States:** The Department of Homeland Security's Cybersecurity and Infrastructure Agency (CISA) has issued national guidance identifying the semiconductor industry under its [initial list](#) of "essential critical infrastructure workers." [California](#), [Pennsylvania](#), and [New York](#) state governments have also identified semiconductors on their lists of businesses that may continue operations.

We call on all states, provinces, and localities taking action to address the public health crisis to ensure the continued operations of the semiconductor industry and its suppliers.