CAE

Case Study: Solar Panels

PART 1 OF 2

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Performance Task: Solar Panels

SCENARIO

New Horizons is one of Europe's largest producers of photovoltaic (PV) solar panels. They have tried to sell their German-made panels to U.S. buyers for years but have been unable to compete with the prices of American manufacturers. They hope that by sourcing some solar panel components more cheaply from China and then manufacturing them directly in North America, they can penetrate the U.S. market and become one of the world's leading sustainable energy producers.

ROLE

New Horizons has recently hired you as an external consultant.

TASK

You have been provided you with several documents for your review. Read the following documents to understand the underlying issues as they relate to the supply chain and develop a list of solutions to address these issues, which could include alternatives to sourcing these component parts from China.

Document Library

Document 1: Press Release from New Horizons

Document 2: Infographic of PV Solar Panel Component Manufacturing Value Chain

Document 3: Newspaper Article Describing One City's Bid to Become the Site of New Horizons' North American Factory, *Eaton Shores Chronicle*

Document 4: Letter to the Editor from a Citizen of Danville, a Midwestern City in the United States, *Danville Times*

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Document 6: New Horizons' Internal Discussion

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DOCUMENT 1: Press Release from New Horizons

New Horizons

New Horizons Announces Plans to Build North American Solar Panel Facility

Released 2:55 p.m. on Monday, March 7

In an effort to become one of the world's leading sustainable energy producers, solar energy giant New Horizons, headquartered in Germany, announced plans this week to invest $1 billion in a new solar panel manufacturing facility in North America. The bid to enter the U.S. market in the production of photovoltaic (PV) solar panels follows a decade of steep growth in the use of solar power in the United States, which is now the second largest global PV market, according to government statistics. The billion-dollar investment aligns with the U.S. government's long-term energy goals of decreasing dependency on foreign energy supply, thus improving energy security for the U.S.

In turn, New Horizons will position itself to meet the rising demand for solar panels for residential, industrial, and commercial use. In fact, according to a recent international solar industry report, nearly 40% of all new electricity generation capacity installed in the United States in the last two years has been from solar PV, up from only 4% a decade earlier. New Horizons hopes to harness a nearly unlimited supply of sunlight to bring environmentally sustainable energy supply to the United States.

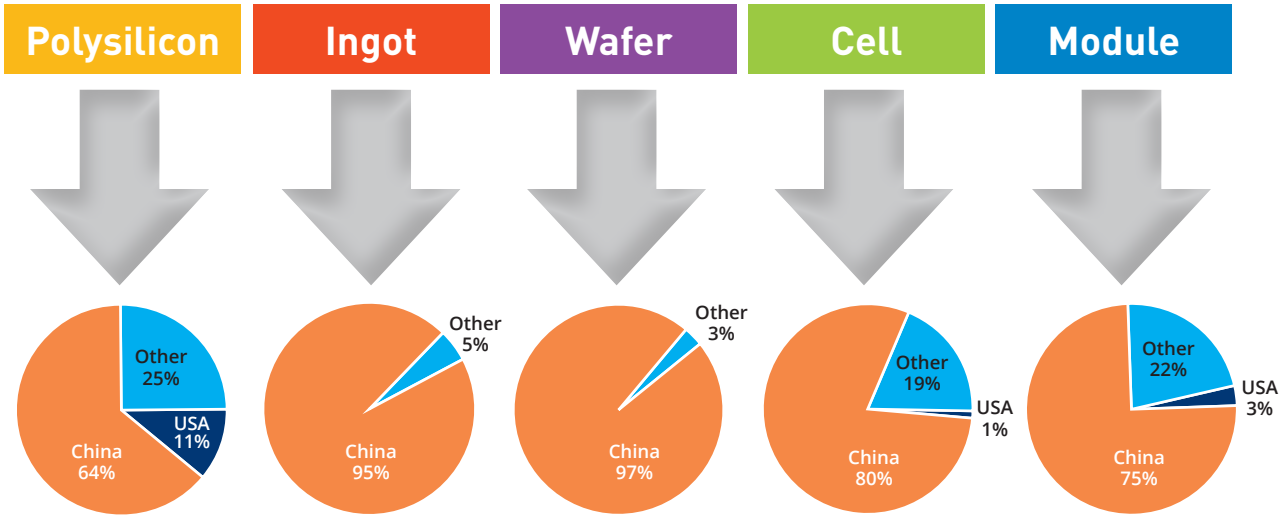
Alongside its new facility, New Horizons will generate a bustling network of activity, as suppliers, well-paid employees and their families, and a broad range of businesses converge on the area. Their plans include the construction of a factory set to employ 1,000 workers and create at least 2,000 auxiliary jobs in the region. The company expects to hire approximately 30 executives and senior- to mid-level management employees; 250 administrative staff; and as many as 650 factory employees, including floor supervisors, machine operators, assemblers, and entry-level positions.

In order to meet the need for a variety and abundance of skilled labor in their chosen city, New Horizons hopes to partner with nearby universities and community colleges in order to attract and develop a pipeline of talent, as well as to collaborate on research and development opportunities. New Horizons is accepting bids from communities looking to work in partnership for a brighter future.

DOCUMENT 2: Infographic of PV Solar Panel Component Manufacturing Value Chain

How PV Solar Panels Are Made

Sand from quartz is turned into **polysilicon**.	Polysilicon is liquified and turned into **ingots**.	Ingots are then sliced into **wafers**.	Wafers are textured and coated to become **cells**.	The cells are interconnected to become **modules**.



PV Solar Panel Component Sourcing

Source: doe.pvsolar.gov/component sourcing

DOCUMENT 3: Newspaper Article Describing One City's Bid to Become the Site of New Horizons' North American Factory, *Eaton Shores Chronicle*

EATON SHORES CHRONICLE

Friday, April 8

Eaton Shores Sees Solar Energy Partnership on the Horizon

By Ruby McIntire

You may have seen them mounted on rooftops, lining sunny fields in our nation's Southwest, or powering traffic signs as you drive down Highway 21 on your way to the airport. I'm talking about solar panels, and if you live in Eaton Shores, you may be seeing a lot more of them around town, as soon as next year. The Business Development League announced plans Friday to throw its hat in the ring in a bid to land a billion-dollar solar panel facility right here in Eaton Shores.

German solar panel producer New Horizons is hoping to profit from the United States' rising demand for cleaner energies. To accomplish this goal, they are looking for a 500+ acre site, and Eaton Shores officials believe they have just what New Horizons is looking for in the former Fields Facility. The old Fields tractor plant, which sits vacant on 549 acres of land purported to be worth $89 million, has been inoperable for over a decade. Its current owner is poised to sell the property, which is already outfitted with water, sewer, and electric, directly to New Horizons. Eaton Shores Commissioner Donna Turner says Eaton Shores is ready to contribute the $150 million necessary to expand the roads leading in and out of town.

"We are ready to offer more financial incentives this time around," Turner says, referring to the lost opportunity three years ago, when tech company Comtrex chose Lakeview, Delaware, for the site of their regional headquarters. "Along with the tax break, we are hoping they will see our tight-knit community as a positive attribute. Our school districts are highly rated, our citizens are engaged in public issues, and our beautiful harbor along the Atlantic coast provides plenty of recreational activities."

While the news of Eaton Shores' bid to become the next home for the solar company has created quite a buzz around town, not everyone is excited about the news. Some people are upset about the five-year tax exemption that has been offered to New Horizons and the likelihood of increased taxes for local residents to pay for the road expansion—never mind the headache involved with widening the roads that lead in and out of town.

But Commissioner Turner counters these complaints, saying, "While offering New Horizons a temporary tax exemption would require some tightening of our collective belt, after five years, they would be our city's biggest tax payer, providing economic stability for generations to come." ■

DOCUMENT 4: Letter to the Editor from a Citizen of Danville, a Midwestern City in the United States, *Danville Times*

DANVILLE TIMES

Wednesday, April 13

Dear Editor:

I've heard solar panel manufacturer New Horizons is looking for a North American city for their new plant. Why doesn't Governor Laredo make himself useful and let them know Danville would be a perfect candidate? It's not a hard sell: Our location is near perfect, sitting between two major metropolitan areas. Our interstate can get you to and from an international airport in less than an hour. Our commuter rail line can draw employees from these neighboring regions while providing residents with easy access to nearby colleges and universities (to say nothing of the museums, concerts, and the other amenities of a big city).

Some of you may be thinking, why would New Horizons choose us? Our population is declining, and young people are leaving Danville due to the lack of good job prospects. In fact, we've got the highest unemployment rate in the state. But let's look at the positive: we have hundreds of potential workers just waiting for employment! My aunt works in payroll at the hospital and she said the average annual salary at New Horizons is going to be over $50,000 a year. This kind of money would help families get back on their feet.

And if New Horizons chooses our town, we would ALL be the wealthier for it. More jobs would lead to more people, more stores, and more restaurants. Property values would probably rise too and improve all of our lives.

New Horizons and Danville would be a match made in Heaven.

Think about it Laredo,

Mary Alice Cunningham
Lifelong Danville Resident

DOCUMENT 5: Newspaper Article from the *Providence Press*

A news story has broken regarding supply chain issues affecting China. China was the proposed source for two components (ingots and wafers) essential to the manufacturing of photovoltaic (PV) solar panels at New Horizons' North American factory.

Friday, May 13

PROVIDENCE PRESS

Kinks in the Supply Chain Lead to Shortages Nationwide

By Ali Solman

Empty shelves line the walls of the baby aisle in drug stores nationwide, as diapers have become the most recent casualty in the supply chain tumult. Everything from toilet paper to infant formula to coffee has been affected by recent shortages, causing a headache for consumers, as they either make do without these everyday necessities or open their wallets to meet the rising prices associated with them.

And it's not only household items that have been impacted. The scarcity of products like semiconductors has led to delays at almost every tier of the automobile supply chain, from production to manufacture to distribution. Housing construction has been particularly affected due to shortages in framing lumber and even the laborers needed to complete the orders. Jennie Patterson of Missouri says, "I've been trying to get my kitchen remodeled for the last year, but at each stage of the project, we have to wait for backordered supplies. Either I wait for the look I've dreamed of, or I make sacrifices for the sake of a faster timeline."

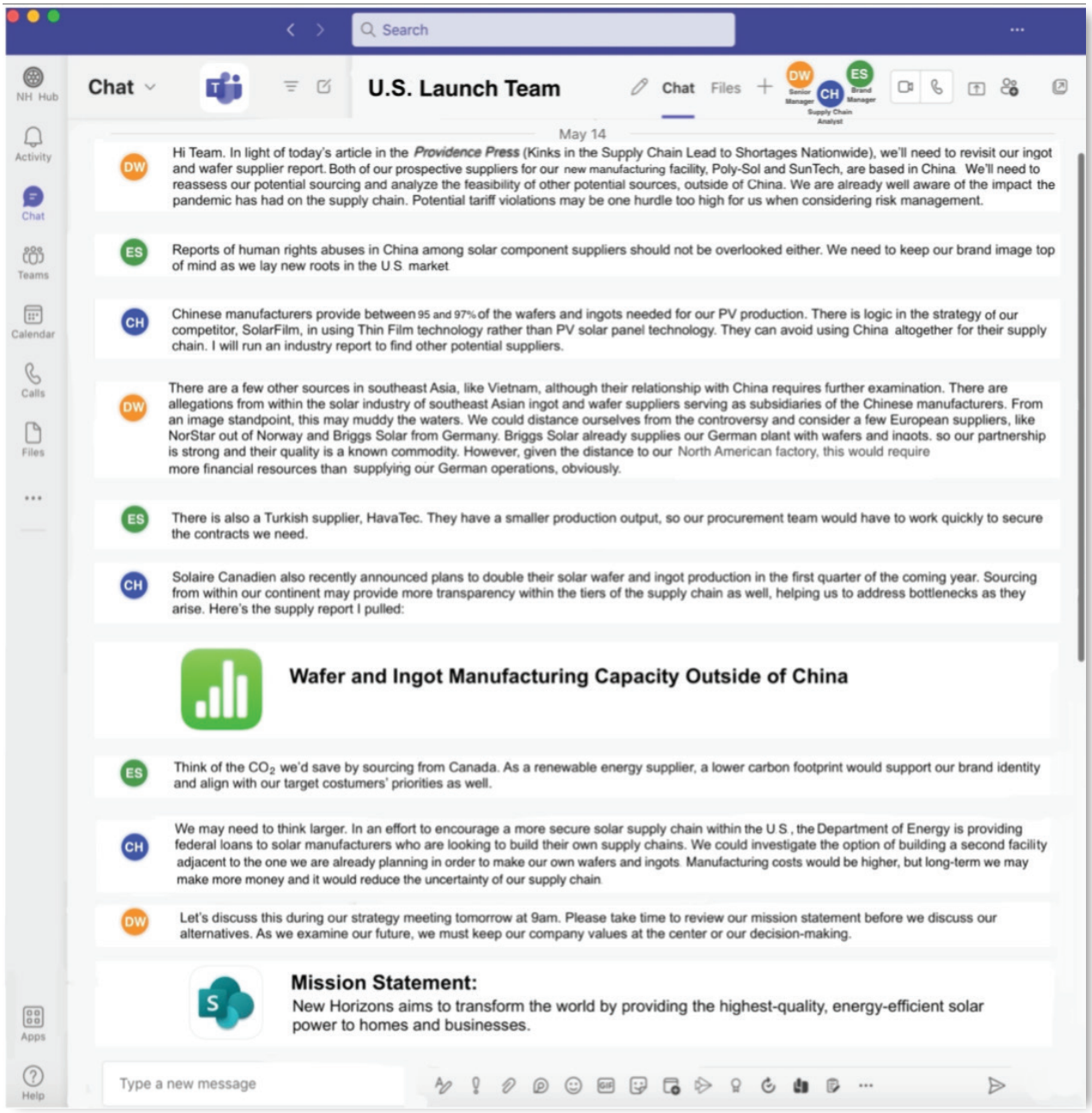
Many people are scratching their heads and wondering, "What even is a supply chain?" It starts with the raw materials of a product and ends with delivery to the consumer, but includes all of the stages in between from manufacture to assembly to sale of the products. It can even refer to the people and systems that manage these stages.

The global pandemic has revealed a glut of vulnerabilities in these systems, as a flare-up of illness, or simply a change in local policy in response to illness, in one part of the world can lead to a bottleneck in the supply chain in another. New cleaning and sanitizing protocols at shipping ports, canceled flights, and even a diminished pool of available workers have hampered the flow of goods to and from our shores.

The pandemic is not the only cause of supply chain disruptions—global politics comes into play as well. The U.S. government recently announced a freeze on the import of PV solar panel products in order to investigate allegations of China's illegal skirting of tariffs. This comes on the heels of accusations of forced labor in Chinese factories that produce solar panel components. Developers were already having a hard time delivering on orders due to the issues mentioned above, but now the U.S. solar industry is warning of even greater delays in project installations this year.

In response to these issues, some companies have taken to chartering their own cargo ships; others have attempted to diversify their number of suppliers and the regions from which they acquire their goods. Still others are taking their goods to the air and avoiding sea freight all together. While markets will eventually adjust to the roadblocks, uncertainties in the short term persist. These uncertainties regarding the supply chain have some companies questioning our reliance on foreign countries for products that could be made here in North America.

DOCUMENT 6: New Horizons' Internal Discussion



DOCUMENT 7: Bar Graph Linked from New Horizons' Internal Discussion (on page 9)