



## Made in Little Rhody

Manufacturing is a significant economic contributor to Rhode Island's economy, and as such an important source of employment for residents. Over 50,000 jobs in Rhode Island are in the manufacturing industry.

### Coastal Access a Huge Plus

Rhode island's small size and 420 miles of coastline provides manufacturers easy access to distribution routes, such as shipping through Narragansett Bay.

The Port of Providence, located at the head of Narragansett Bay, is particularly important to the manufacturing industry because it is one of New England's two deep-water ports, and it has a customs facility.

The Port of Davisville at Quonset Business Park in North Kingstown is also an important distribution center for Rhode Island industry. According to the RI Economic Development Corporation, "As of 2009, the Port of Davisville became the nation's fifth largest center for auto imports."

### Water Proximity Poses Problems

Industrial use of these two ports, Providence and Davisville, to import and export goods will likely



The Port of Providence

Photo Credit: Rhode Island Sea Grant

***Industrial use of these two ports, Providence and Davisville, to import and export goods will likely be disrupted by climate change. Port facilities are vulnerable to both sea level rise and extreme weather events.***

be disrupted by climate change. Port facilities are vulnerable to both sea level rise and extreme weather events. Data from a tidal gauge in Newport Harbor indicates that sea level has risen about 0.8 feet in the past 70 years.

Climate change is expected to cause an increase in the overall number of extreme weather events, including hurricanes. The potential for damage is obvious for any business along the shoreline.

Evan H. Matthews, director of the Port of Davisville, noted that because the port facilities are high enough to accommodate some sea level rise, the Port of Davisville is "more concerned about damage from extreme storms than sea level rise."

Similarly, Port of Providence Facility Manager Stephen Curtis stated, "For us, what is a concern is a higher risk of related storms that might be attributed to climate changes. Wind is one of the main components we are faced with,

both in protecting equipment and infrastructure but also a main concern for vessel cargo operations. While we have plans on mitigating safety risks when storms do happen, the severity and frequency could impact business if the number of available work days were reduced."

These increases in sea level and worse storms pose a threat to older port facilities that were constructed without anticipation of higher sea levels, having a direct impact on the dockage and on and off-loading, among other operations. It also poses a threat to land-based elements, such as offices and transportation.

### There Could Be a Silver Lining

Despite the potential threat to distribution routes by climate change, the predicted climatic changes could also have economic benefits for Rhode Island.

It is acknowledged that a moderate sea level rise would increase the safe working draft of vessels coming into

Rhode Island water. Deeper drafts would increase the variety of vessel classes a port could handle. Vessel loaded with heavier/more cargo would then be able to navigate the deeper shipping channel and dockage, becoming more advantageous for shippers and/or charter parties.

Shipping may also benefit from the longer summers that climate change is expected to bring. Snow and snow removal is currently a major problem for ports. Less snow would cause fewer delays than are currently being experienced, and that would reduce snow removal costs. Accommodating these sorts of changes would require minimal investment to cover adaptation costs.

### Emerging Mitigation Strategy

While climate change adaptation is not an immediate concern for distribution centers, mitigation has already emerged as an economic strategy. The [Port of Providence's ReNEWable Port plan](#) is an excellent example of how mitigation strategies can be integrated into economic benefits. The report states, "...the primary objectives of the proposed improvements at the Port of Providence are to provide economic recovery and sustainability to the City of Providence metropolitan area, the State of Rhode Island, and the Northeast Corridor Region..."

With that lofty mission in mind, the plan outlines three goals for expanding the port through green measures: 1) installing two wind turbines at the port, 2)

outfitting existing port structures with solar panels, and 3) replacing two obsolete cranes with newer models. The installation of wind turbines and solar panels will allow the Port to operate independent of the power grid on alternative energy sources. Carbon emissions from the Port will also be dramatically decreased by the installation of the new cranes. These cranes, in addition to being powered electrically (as opposed to diesel powered), will allow the Port to handle container cargo.

Positive steps like this, that heed climate change projections and recognize the source of the problem, are commendable, if not tools for ultimate survival. Adaptation measures, such as those to cope with on-site growth and expansion while fending off a rising sea and worse weather, will still have to be carried out. But the thinking and foresight are obviously present.

So are the opportunities.

The ReNEWable Port Plan states that "A container port in Providence will allow for 'short sea shipping' from New Jersey and will substantially reduce the need for trucking goods on Interstate 95..." It is this type of recognition of impending threats and seeing the silver lining in the cloud that can help industry lessen the economic impacts of a changing environment.

The payoff for all these actions? The expansion of the Port through these measures discussed above is expected to generate about 1,000 new jobs and significant revenue for Rhode Island.



Petroleum product being unloaded in East Providence.

Photo Credit: Rhode Island Sea Grant