

100

Centennial  
Celebration



Port of  
**LONG BEACH**  
*The Green Port*



*Saluting the Port of Long Beach on its Centennial*



Robert Kanter, Ph.D., is the managing director of environmental affairs and planning for the Port of Long Beach. He is pictured here at one of the port's air monitoring sites located at the end of the Navy mole. The chimney-like device's are particulate matter samplers. (By the Business Journal's Thomas McConville)

## Port Of Long Beach History:

# 2000-2010: The Green Port Era

■ By **MICHAEL GOUGIS**

**S**ome of the major events that shaped operations at the Port of Long Beach in the beginning of the 21st Century sprang from roots that stretched across the globe, from the Middle East to the Far East to the heartland of the United States.

But the major influence on port operations centered right here in Long Beach, and sprang from an intensifying focus on the air that Long Beach residents breathed – and the impact the port had on every breath Long Beach took.

Aside from issues of international security and the rise of the Pacific Rim as a source for the huge retail chains that dominate the market, environmental concerns drove much of the change at the port in the last decade, said Robert Kanter, Ph.D., managing director of environmental affairs and planning for the port.

“It even began 10 years before that,” Kanter said. “We started going into this growth mode, exponentially, with double-digit growth year after year. It surprised everybody. And although many things in this world were advancing at exponential speeds, the maritime goods process was advancing at arithmetic speeds. . . . The technology was not changing very rapidly. So when you had the multiplier effect on that, especially in areas like air quality, you started to see impacts.”

In other parts of the world, such increases in emissions might not have raised a significant alarm. But Long Beach is situated in South-

ern California, historically a region with some of the worst air quality in the nation. Many of the region's residents remember Stage Three smog alerts and spending elementary school recess periods indoors, with playground supervisors preventing children from running for fear of the toxic atmosphere. Any increase in air pollution rang loud warning bells. The port heard those warnings – and responded.

“The one that we use as a dramatic example of impacts has been air quality. All of those modes of transport – ships, trucks, trains, equipment – were fossil fueled. They emitted hydrocarbons, and they did so in an area that already had concerns about air quality. It really came to roost because of its health effects,” Kanter said.

“We've always been a good environmental steward – if we found a mess out there, we would clean it up. And when we got to the Green Port policy, our efforts were ratcheted up beyond compliance. We were looking to be pro-active. We were looking to the future. We looked at practices that would allow us to continue to grow and eliminate or minimize the environmental impacts. We wanted to be able to move more cargo, emit less air pollution, and have a smaller impact on the surrounding community. And the thing that I'm proudest of is that we've done it.

“We want to work toward moving cargo without air emissions – that doesn't happen overnight, especially in a huge chain of logistics. You have to support the development of those technologies, and you have to hope that people adopt those into the manufacturing of those devices. And you have to hope that people purchase those machines and put them into operation.”

At the beginning of the decade, port officials did two things that were key to making significant improvements in air quality. First, they measured what they were emitting – you can't make progress unless you know from where you are starting. Then, they brought into the



An International Transportation Service crew is seen here plugging in a ship that berthed at Pier G. (Photograph by the Business Journal's Thomas McConville)

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debate everyone who could make the process of cleaning the environment work better or impede its effectiveness.

By the end of 2002, the port had completed an inventory of the emissions from all sources in the port, from the ships to the equipment used to load and unload those vessels. "We had a pretty good handle on what the port complex was emitting at that point," Kanter said.

By that point, agencies such as the South Coast Air Quality Management District, the U.S. Environmental Protection (EPA) Agency and the California Air Resources Board (CARB) were in regular discussions with the port about what needed to take place in the future.

"We brought them in at the beginning of this process so we could all agree on the baseline, and we said, 'You will be involved in the process by which we measure,'" Kanter said. "We promised our board – and the public – that we would be transparent. As we implement programs, that affects our air inventory. And we can point to real emission reductions. We've walked the walk. That's something to be proud of. We've seen improvement."

Halfway through the decade, in January 2005, the port's leadership adopted the Green Port policy. It was the outline that would steer development efforts for the future. If there was a cleaner way to do something, that method would be encouraged. The port would seek funding sources for new, cleaner technologies – and would put its own money into the game if necessary.

A year later, in November 2006, the ports of Long Beach and Los Angeles adopted the Technology Advancement Program. The goal was to help port operators adopt newer, cleaner technology more rapidly than they would have if left to the strict economic pressures of the market. One example: the locomotives used to haul containers around in the ports. Without an external assist, those "dirty" engines could still be in use decades from now. The ports decided that not only would they limit emissions from the sources of pollution, but also help shippers and cargo handlers come up with ways to clean up their acts.

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## Board Votes For Landmark 'Green' Lease

Accord To Cut Air Emissions By 90 Percent At Port's Third-largest Terminal

May 23, 2006

The Port of Long Beach has agreed to an historic accord with "Green Port" environmental covenants. The lease agreement with International Transportation Service, Inc. will reduce air pollutants by at least 90 percent at the Port's third-largest cargo terminal by requiring ships to use shore-side electricity and by replacing cargo-handling equipment.

Under the agreement approved Monday, May 22 by the Long Beach Board of Harbor Commissioners, ITS will phase in the use of shore-side electricity ("cold-ironing") and other environmentally friendly technologies that will significantly reduce emissions of nitrogen oxide (NOx) and diesel-related particulate matter from ships at berth and from cargo-handling equipment inside the 246-acre Pier G/J terminal.

Earlier this month the Board approved Long Beach's first "Green Port" agreement, an amendment to a lease with SSA Terminals, a joint venture of Matson Navigation Inc. and SSA Marine. The SSAT accord will cut pollution by 90 percent at the 68-acre Pier C container terminal.

"With this lease, the Port will have two of its largest cargo terminals operating under 'Green Port' environmental provisions," said Harbor Com-

mission President Doris Topsy-Elvord. "The ITS lease, on the heels of the Matson lease, shows a serious commitment on the part of the Port and our customers to work together toward clean-air solutions."

Through this new 20-year lease, ITS agrees to accelerate the replacement of its terminal cargo-handling fleet with cleaner-burning tractors and other equipment several years before the new technology will be required by law. The Port will build dockside electrical infrastructure for cold-ironing to improve air quality while "K" Line makes significant investments to upgrade ships to accommodate shore-side electricity.

For its cargo-handling equipment, ITS agreed to use only California Air Resources Board verified emulsified "clean" diesel fuel or other similarly clean technologies by September 2007. By 2011 all of ITS' terminal cargo-handling equipment will comply with U.S. Environmental Protection Agency off-road standards and new vehicle standards (several years before they will be required by law) to achieve a 90 percent overall reduction in emissions.

ITS will phase in the use of cold-ironing as the electrical infrastructure is built by the Port. Ultimately, 100 percent of the ships calling at ITS will use cold-ironing or comparable technology. The lease also includes other environmental provisions such as "green building" requirements.

To improve efficiency and accommodate more cold ironing, ITS has the option to reconfigure its Pier J facility by adding 50 to 70 acres with a combination of landfill and existing land. The reconfiguration will help the terminal operate in a more environmentally friendly manner by also maximizing the use of on-dock rail to reduce truck traffic, among other improvements.

Through this accord, the Board of Harbor Com-

missioners is pioneering the use of leases to improve the environment. The board is not an environmental regulator with authority to clean up the ships, trucks, trains and yard equipment at the Port. The board governs the Port with its land-use authority and its power to approve terminal leases.

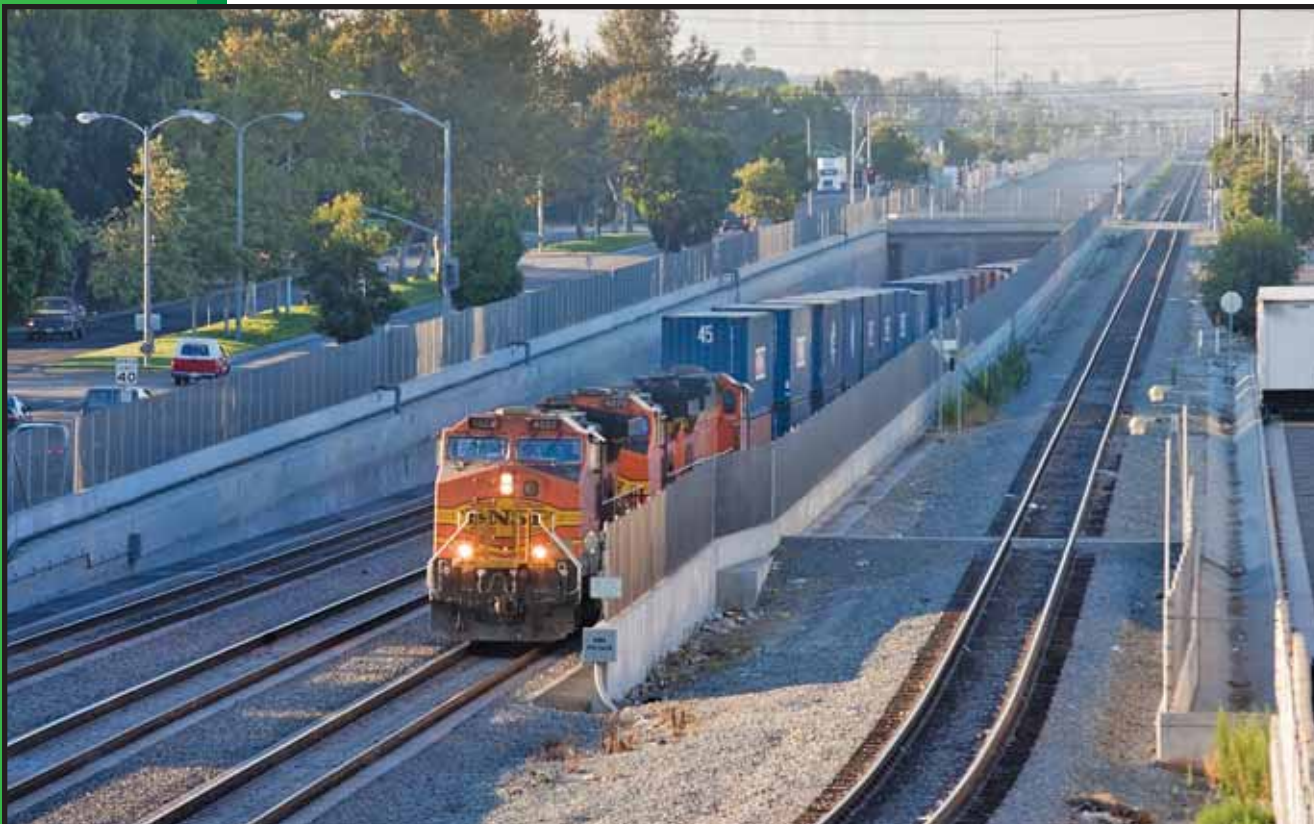
The ITS lease agreement is the first new lease agreement at a North American seaport in which a cargo terminal operator voluntarily agreed to cold-ironing provisions and other environment improvements without the mandates of litigation, regulation or a government-required environmental review. Matson's existing lease was amended to include the environmental covenants, as opposed to creating a new one.

The Port of Long Beach's Green Port Policy, approved in January 2005 by the Harbor Commission, includes guidelines that direct the Port to develop terminal lease requirements promoting environmental sustainability.

The ITS cold-ironing project is the Port's third, after Matson and BP. Two years ago, without the framework of a lease, the Port agreed to develop shore-side electrical infrastructure at an oil terminal where BP volunteered to cold iron at least two of the company's oil tankers.

The Harbor Commission has approved a \$7.3 million contract with Manson Construction Co. of San Pedro for the waterside electrical infrastructure at the Berth T121 oil terminal leased to BP. The work is scheduled for completion in spring 2007. A second contract will be awarded this fall for onshore electrical facilities, with completion expected in summer 2007.

(Source: Port of Long Beach press release issued May 23, 2006) ■



The \$2.4 billion Alameda Corridor began operations April 15, 2002. See press release below.

## Unique Partnership Opens \$2.4 Billion Freight Rail Project On Time, On Budget

April 8, 2002

A first-of-its-kind freight rail expressway opens this week in Los Angeles County, speeding everyday consumer products from the nation's two busiest ports to the transcontinental rail yards near downtown Los Angeles, providing a model for public-private partnerships and delivering multiple benefits to the nation, state and region.

One of the nation's largest public works projects, the \$2.4 billion Alameda Corridor is opening on time and on budget. Reflecting the project's significance, more than 1,000 people – including U.S. Secretary of Transportation Norman Y. Mineta, California Gov. Gray Davis, Los Angeles Mayor James Hahn and Long Beach Mayor Beverly O'Neill – are expected to attend a grand opening ceremony on April 12.

Stretching through eight cities along its 20-mile route, the Alameda Corridor is a series of bridges, underpasses, overpasses and street improvements that separate freight rail, passenger rail and street traffic. The centerpiece is the Mid-Corridor Trench, a 10-mile-long below-ground trainway that runs parallel to Alameda Street. By consolidating four railroad branch lines serving the ports, the Alameda Corridor eliminates more than 200 at-grade crossings where rail and street traffic conflict, thereby easing traffic congestion and significantly reducing air and noise pollution from idling trains, trucks and cars.

The Alameda Corridor was built by the Alameda Corridor Transportation Authority (ACTA), a joint powers authority governed by the cities of Los Angeles and Long Beach, the ports of Los Angeles and Long Beach, and the Los Angeles County Metropolitan Transportation Authority. When operations begin April 15, the Alameda Corridor will be operated by a unique partnership between the Port of Los Angeles, the Port of Long Beach, Burlington Northern and Santa Fe Railway and Union Pacific Railroad.

"The Alameda Corridor was a monumental undertaking and an example of what can be accomplished when government agencies join together to work in cooperation with the private sector," ACTA Chief Executive Officer James C. Hankla said. "The project also demonstrates that we can facilitate economic growth and international trade without sacrificing quality of life."

The adjacent ports of Los Angeles and Long Beach are the two busiest seaports in the nation, handling more than \$200 billion in cargo in 2001. Approximately half of the cargo – including everyday consumer products such as electronics, apparel and shoes – is transported by train outside of Southern California to destinations across the country. The volume of cargo containers handled by the ports doubled in the 1990s to approximately 8 million units. Those volumes continue to increase, and the ports project more than 24 million units by 2020.

Today, there are 20-35 daily train trips on the branch lines serving the ports, with trains averaging 10-20 mph. The Alameda Corridor is designed to accommodate the 100 daily train trips to and from the ports projected for 2020, with trains averaging 30-40 mph.

By providing a more efficient way to transport cargo, the Alameda Corridor delivers significant economic benefits to the nation, state and region. Leaving a legacy beyond construction of a public works project, the Alameda Corridor also provided direct benefits to local communities and residents.

The Alameda Corridor was funded through a unique blend of public and private sources, including \$1.16 billion in revenue bonds sold by ACTA, a \$400 million loan from the U.S. Department of Transportation and \$394 million from the ports. Bond debt service will be paid with fees collected from the railroads for the transportation of cargo containers outside of Southern California.

(Source: Port of Long Beach press release issued April 8, 2002) ■

In December 2010, the technology program earned the ports the U.S. EPA's Pacific Southwest Region's 2010 Environmental Achievement Award.

Key to reducing air pollution is the port's Clean Trucks Program. Included in the 2007 Clean Air Action Plan, the program started out by banning pre-1989 trucks from serving the port in 2008. Through a series of progressive restrictions, the port is expected to ban, by 2012, any truck that does not meet 2007 emissions standards. Trucks that meet the 2007 standards emit 80 percent less pollution than older vehicles.

And it has worked, port officials say. The truck emissions target the port was aiming at for 2012 was reached in 2010.

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As mentioned, pollution comes from a lot of different sources in a port. Some of it starts literally over the horizon from the facility. Port officials put in place procedures to help clean emissions as ships approach the harbor.

The Vessel Speed Reduction Program (popularly known as the Green Flag program) asks ship operators to slow their speed to 12 knots within 40 nautical miles per hour of the port; ships that move slower emit fewer pollutants. In 2009, more than 70 percent of the ships calling at the Port of Long Beach participated in the program – reduced docking fees, apparently, work quite well in encouraging participation in a voluntary program!

Another, perhaps lesser-known program only lasted for a year, but it demonstrated the port's commitment to cleaner air. The CARB ordered ships to start using low-sulfur gas and diesel fuels in their main engines starting in June 2009. The port got a head start on that program. For ships that used low-sulfur fuel closer to the shore during the year prior to the CARB mandate kicking in, the port paid the difference in the price between the cheaper, dirtier fuel and the cleaner-burning, low-sulfur fuel.

Ships also emit pollutants at berth, because they still need power when docked. The port led the way toward the creation of "cold-ironing" berths. (The term "cold-ironing" is left over from steam-powered ocean-going ships; when the iron on the boiler was cold, the ship was not producing power.) At cold-ironing berths, instead of a ship shutting down power production entirely, the ship plugs into the electric power supplied by the port to run its systems while at berth. By the end of the decade, three key terminals offered plug-in power, with more planned.

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Technological advances are not always as easy as they seem. How hard can it be to run an electrical line to a ship? Well, if the ship weighs 300,000 tons, and is loaded with oil, you want to be pretty careful with that. Electrical short circuit + ship full of oil = bad. At the BP terminal, the plug-in facility is mounted on seven-foot diameter pilings sunk 180 feet into the ground, just to

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make sure that a random nudge from that tanker doesn't cause a catastrophe.

But to achieve emissions reductions, the harbor has had to dig deep. One of the most successful operations has been the push to clean up the short-line rail service that moves containers around the port – 40,000 of them a year. Short-line rail services, historically, tended to keep older locomotives in use, simply because you didn't have to

worry about them breaking down while crossing the Rockies. But by 2008, Pacific Harbor Line had replaced its entire locomotive fleet with cleaner Tier 2 engines, and the port announced in November 2010 that 16 of those locomotives would get new Tier 3 engines – reducing their particulate pollution another 90 percent.

Everything that can be cleaned up gets an eye turned toward it. Technologies such as a hybrid-powered tugboat became a reality in the port, as the push for cleaner transit systems continued.

The cranes that straddle the cargo containers and ship them around? One of the most advanced ideas under consideration actually is shared with the high-tech racecars of Formula One. “You're going to see advances on ship-to-shore cranes, where they'll be saving power on certain cycles and expending power on others,” said port Executive Director Richard Steinke.

You can design a system that uses a flywheel to, in essence, slow the rate of descent of a container from the crane – the spinning wheel acts as a brake. But that spinning wheel now contains a great deal of kinetic energy. You can tap into that energy the next time you need to lift a container. That means less energy needs to be generated to lift the next container. And less energy generated means less pollution.

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While air quality is perhaps the most visible change in the port's environ-

mental efforts, there are other changes as well. Some of them are rather dear to Kanter's point of view. He first came to the port in the 1970s, doing research for the University of Southern California. What he's noticed is the change in the water.

“There was some really ugly stuff here,” he said, recalling his research from the 1970s. “Now, you can eat the fish here. The kelp is coming back. That only grows in good water. We've got an incredible improvement – and during all of this time, our trade volume increased.

“We have a storm water pollution program that prevents pollution from entering the water. What we are installing in some terminals are pipes that will purify those waters before they are discharged. That's a lot more cost-effective than replacing your existing infrastructure,” Kanter said. “Our water quality has improved incredibly – not just because of what we do, but we're a part of it.”

Much of the activity in the Green Port era has gone similarly unnoticed. But it is ongoing, and all-encompassing. A lot of small improvements can make a remarkable change.

“We bought oilfields here – they were areas that were about 720 acres, very valuable waterfront property, but they were very heavily contaminated. We bought the liability associated with that. And we cleaned it up. And now those areas are thriving terminals or soon-to-be thriving terminals,” Kanter said.

“Those are very consistent green practices. If you come into our port buildings, we've adopted sustainable practices. We are doing things that you might think are ordinary, but we've taken it to the level of our responsibility as a landowner. When we do demolition, we recycle that material. When we design buildings, we design them to environmental standards.

“We live sustainability. It's a culture here. It's not just greenwashing. We've kept our word.” ■



The port's Clean Trucks Program launched in 2008 began by banning pre-1989 trucks. By 2012, all pre-2007 trucks are to be banned. (Photograph by the Business Journal's Thomas McConville)

## Nation's Two Largest Ports Approve Plan to Reduce Air Pollution And Health Risks

November 20, 2006

The governing boards of the ports of Los Angeles and Long Beach today approved the landmark San Pedro Bay Ports Clean Air Action Plan, the most comprehensive strategy to cut air pollution and reduce health risks ever produced for a global seaport complex.

The Plan was approved Monday by the Port of Long Beach Board of Harbor Commissioners and the Port of Los Angeles Board of Harbor Commissioners in a joint meeting at Long Beach City Hall.

The historic vote commits the ports to an aggressive plan to reduce pollution by at least 45 percent in the next five years. The \$2-billion Clean Air Action Plan addresses all port-related emission sources – ships, trains, trucks, terminal equipment and harbor craft – to significantly reduce health risks posed by air pollution.

The five-year Clean Air Action Plan was created with the cooperation and participation of the South Coast Air Quality Management District, California Air Resources Board and U.S. Environmental Protection Agency.

The Plan includes:

- Hundreds of millions of dollars of investments by the two ports for air quality programs.
- Aggressive milestones for air quality improvements.
- Extensive use of ship-to-shore electricity at the ports within five years.
- A commitment to use pollution-based impact fees so that polluters pay their part to improve air quality.
- A first-ever agreement between the Ports and air quality regulators to develop emissions standards for the San Pedro Bay (by Spring 2007).
- A truck replacement program to phase out all “dirty” diesel trucks from the ports in five years, replaced with a new generation of clean or retrofitted vehicles.
- An aggressive technology enhancement program to develop and implement cutting-edge clean-air technologies.

(Source: Port of Long Beach press release issued November 20, 2006) ■