

TraPac Draft EIR Comments

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San Pedro Bay**

Introduction

The problem we face with the TraPac EIR is that is being developed in a transitional period, between one set of technologies which is becoming obsolete and another set which need more demonstration — are not yet ready for prime time.

In this bind, it is a shame to spend good money on methodologies that should already be obsolete only to replace them with new technologies in the near future. But it is equally a shame to lock ourselves into old technologies and spend a lot of effort and money trying to shore them up to meet modern challenges when new technologies may prove to be far superior.

Conventional rail and roadway transport systems served us well through the years of containerization — for most of their years of operation, with serious problems become first evident in the 1990s. That's about 30 years of unstressed service, which considering the growth that transpired in that period, is not bad.

There are a number of reasons for this success. One was that cargo volume were much smaller than today. The low cargo volumes could be absorbed by our regional roadway and rail transportation system without much trouble. Until the 1990s, port trucks comprised a relatively low percentage of traffic on the Harbor (I-110) and Long Beach (I-710) Freeways.

This low impact on the freeways meant that port planners could essentially take the freeways for granted, knowing that there was enough capacity (though not all as free-moving as we would hope) to move trucks to and from the ports.

Relatively smaller ships also called on the port in that era, meaning that we were much less likely to develop log jams as trucks queued up to pick up and drop of cargo at Southern California goods movement centers, including the port.

Until roughly the 1980s the United States was the world's largest creditor nation. It had a favorable balance of trade, exporting a greater dollar value than it imported. Through the 1980s, that changed, as American manufacturing began to move overseas to take advantage of lower labor rates and lower environmental standards in manufacturing. Our balance of trade began declining, until it went negative. It has been on almost a constant downward spiral since, and the United States is reportedly now the nation's largest creditor nation.

Through the initial years of containerization, air pollution due to goods movement was likely a much smaller percentage of the total air pollution pie chart for Southern California. It's a matter of speculation, since there were no records kept on diesel pollution at the time. Though diesel fuel and equipment was dirtier, we used far less diesel, which was reflected in two ways. The low price of diesel in comparison to gasoline in that period and the smaller cargo volumes. Further, cars, refineries and manufacturing facilities were all far dirtier. Our research attention was focused on these, likely because diesel didn't appear to play a large role in area photochemical smog.

Global warming was further not as serious a concern then — not just because it was less understood, but because we had less effects from global warming than today. Today, just about every glacier in the world is in obvious retreat, and we are about to open up a northern passage through the Arctic Sea. In 1980, no one would have imagined that either of these were likely by 2010. We have now also noticed that our oceans are becoming more acidic, as a result of absorbing carbon from the air.

The Squeeze

Now, the "honeymoon" period for cargo movement and world trade is over. We are at the point where the way we are doing world trade and moving cargo is unsustainable. We are also at the point, where cargo growth is colliding with regional population growth and systemic limitations inherent to moving cargo by highways and conventional rail.

Now, if a port project puts more trucks on a freeway, it is a prudent question whether that freeway will be able to support that additional traffic. In the instance of the Harbor Freeway, it is not clear that it will. Nor, is it clear that Caltrans will be able to expand the capacity of this freeway any further. Parts of this freeway are already double-decked, and have a total capacity of 14 lanes, two HOV and five standard lanes of travel in each direction.

Even if the Harbor Freeway can carry the additional load TraPac may place on it, there is no certainty that a bottleneck won't develop further up the highway system as trucks leave the I-110 for another freeway or route. Once again, there is no certainty that any other route can be expanded on a timely basis to meet the needs of the goods movement industry.

Part of the problem is that metropolitan Los Angeles is built out. Part of it is that Southern California's population is still growing, including that of metropolitan Los Angeles. Even if port trucks can rely on the freeways today and we don't add another truck to the highways, the existing freeways may snarl up port traffic in obscene commuter traffic.

There are some economists who feel that world trade is a boom market that is in for a major correction that will be triggered by weakening of the dollar. Once, the Euro was worth about \$0.85. Today it is worth about \$1.40. There are nervous expectations that the Yuan will need to be floated against the dollar before long. This could put a sharp downward pressure on the number of Chinese goods Americans buy. This puts our ports and the portions of the Southern California economy that depend on the ports in a vulnerable position.

So far, our best efforts to clean up port pollution have accomplished only a symbolic milestone. We have markedly decreased the total amount of pollution per unit of cargo moved through the ports. Though that's certainly a good sign, it is sobering to realize that the total pollution attributed to the ports is still on the rise. We are about six years into efforts to deal with it, and this is all we have accomplished. Either we are not trying hard enough or the problems are more intractable than we realized or a combination of both.

We clearly need to do something about climate change. If goods movement continues to grow without reducing its carbon emissions, by 2050, goods movement would use up all the carbon emissions permitted by a carbon reduction program some suggest we need. Though we can argue just how much the reduction needs to be, it is clear, that goods movement has the potential to overwhelm our best efforts if we don't work hard to bring it under control.

Even without these speculative concerns, we will be challenged to build conventional rail and highway projects fast enough to keep up with increasing demand. Southern California's long term transportation studies, such as SCAG's *Destination 2030*, are sobering in this regard.

Moreover, following a course of traditional infrastructure, we will be on a chase to reach the holy grail of attainment. We'll have Tier One locomotives, then Tier Two, Tier Three, Tier Four, and then what? By 2030, even Tier Four may not be good enough. We'll be phasing in new truck standards every few years. For how long? As the number of trucks continues to grow, we're bound to reach a point of diminishing returns no matter what hydrocarbon fuel we burn in the trucks.

This is a lot of money to *try and clean up* a system that is (1) inherently dirty and (2) may not be able to provide the muscle needed to move the number of containers we are expecting to move.

It is important for the TraPac EIR to consider the inherent limitations we may be

reaching as it looks at various alternatives. And that is perhaps part of the rub — because at 6000 pages, this EIR is already beginning to feel like a research paper, or at least a synopsis of research. This, however, may be part of what is required at a transition point.

Changes

If we simply apply the same roadway and rail transportation technology we have built since WWII, we will not meet the challenges we face. That is because we've reached a point of diminishing returns for this technology. Viewing our Southern California goods movement transportation network as a single system, an increase in net capacity of that system will now entail more and more work and more and more money to accomplish. It's rising inefficiency will make it harder and harder to meet environmental objectives. It will also make the economic system more and more dependent on underpaid labor to do the work while at the same time making it harder to find the needed number of workers.

We to move in a new direction and apply the technological advances our civilization has made to goods movement. We need a "smart", modernized, all electric goods movement system that uses a backbone of modernized rail supplemented with short-haul, fleet-based truck operations. Throughout this system, the drivers, dockworkers, warehouse and distribution center workers all need to make livable wages and benefits that they can receive as career employees as part of a stable workforce.

We need to move in measuring port growth by green metrics instead of brown ones. Currently, we measure cargo by counting the number of containers that move through the port. This either counts the wasted movements of moving empty containers or fails to consider the inefficiencies of moving empties at all.

Instead of counting containers, we should consider the economic value of the contents of those containers as they move in both directions through the port, inbound and outbound. We need an incentive metric that deducts the port capacity score when the balance of trade is unequal, since a trade imbalance is not economically sustainable.

And we need to consider incentives in this process to increase local production (local manufacturing). This is an essential component of improving the trade balance.

Clearly, increasing local production is not part of the Port's job. However, it is certainly part of the city's. As Los Angeles explores methods of stoking its economic fires in a sustainable manner, it may need to put more of its efforts into restoring a local manufacturing base. One of the ways the port can help is by working to help secure an export market for some of those goods.

San Pedro Bay Master Plan

One of the shortcomings the TraPac EIR must deal with is the lack of a San Pedro Bay master plan, or at least an redrafted Port of Los Angeles Master Plan. The current port master plan is more than 25 years old with a series of what appear to be ad hoc updates that haven't taken time to orient the master plan to a possible new set of priorities and objectives.

Our increased understanding in climate change, the importance of geographically-distributed estuaries to fisheries and biological diversity, the relationship of open space and natural to childhood development and community well being and our understanding of the health impacts of toxic pollution, noise and lighting have all advanced since then.

Additionally, we've had some significant changes in the demand on land use since the last time the plan was written, in terms of changes in industry (relative use of fisheries, passenger service, cargo transport, and recreation) as well as different social values. Further, as the ports have become more efficient, the number of jobs per acre offered by port work has decreased. This decrease has left the neighboring communities with less employment per unit of cargo but with more health impacts.

Ideally, any major EIR by either San Pedro Bay port should be withdrawn until the two ports can cooperatively draft their new master plans in a way that works as a cohesive whole.

The new master plans need to take in to account the diverse land-use needs of our tidelands trust area to ensure that no single use dominates the others to their full or excessive exclusion. An objectives driven master plan might be driven by the following types of criteria:

1. A cap to the acreage devoted to cargo movement, which is a use that has been taking over the Bay. That may be the current use area.
2. A minimum number of acres for restored or partially restored wetlands, perhaps 350, about 10% of the original amount in the Bay.
3. An areas set aside for personal water sports recreation, for example, the Los Angeles Outer Harbor.
4. Ensuring that each port community (San Pedro, Wilmington, and Long Beach) has its own shoreline access. This is distinct from waterfront access, by including a place where people can get their feet wet, take a swim, launch a kayak or canoe, etc.
5. Ensuring sufficient marina space including locations for transient berths.
6. Establishing objectives for passenger service
7. Removing non-essential, support elements from the tidelands zone.
8. Providing for an appropriate area for retail and dining activities consistent with the Tidelands Trust

9. Providing sufficient buffer space between industrial facilities and residential neighborhoods
10. Completion of a multi-track California Coastal Trail and supporting amenities around the Bay.
11. Provision of sufficient research and biological study facilities with hands-on access to the Bay and habitat areas.
12. Ensuring that small retail, cultural and social justice needs are provided for at minimum standards with the plan.
13. Fisheries support via berths and habitat.

As part of item (7), the plan would look at technology that permits cargo containers to enter and leave the port more quickly, reducing container storage area within the port. This may involve modernized rail or guideway systems, different trucking management practices (making it easier to match drivers to containers), and container stacking systems. It would also involve moving parking lots and roadways out of the port to make more land available for other more tidelands-connected uses. This item works toward the objective of enhancing tidelands value by ensuring as much of the tidelands as possible are devoted to activities which can only be done in the tidelands area.

An appropriate master plan doesn't start by looking at all the myriad of projects the port may want to complete, and then budgeting land use accordingly. Nor should it work from the perspective of how to maximize revenue for the port by maximizing revenue for each parcel of land. Though run as a business, the port is a municipal agency and as such, and as part of its obligations to the Tidelands Trust, it has a wider set of obligations than simply making revenue or simply facilitating cargo movement. (Clearly, these are important part of its mission, but they should not solely define its mission.)

The prevalence of heavy industry and shipping in the port has created a burden on local communities which contributes to their depressed state. It is not in the better interest of the State of California to have depressed communities, since the social and financial problems they create in turn become a burden on the state. We can operate just exactly as much cargo movement within the ports as maintaining the various Tideland Trust objectives and sustaining local communities permits, and not a container more. Any increases

The destruction of coastal wetlands in California (more than 95% destroyed), habitat destruction in the oceans affecting our kelp forests and overfishing have worked together to bring our fishing industry to collapse. With growing world population, we've lost an important food source and the economic activity associated with it. This is also part of the many items that have helped make our oceans "sick", including greenhouse gasses, which are resulting in the acidification of our oceans. The

Regional Goods Movement Plan and Analysis

SCAG'S *Destination 2030* Regional Transportation Plan Programmatic EIR is deficient. It fails to consider the role of emergency technology to move goods. It fails to consider the importance of community-centric design and land-use reform as a method of reducing transit demand, and it fails to consider global warming.

Proposition 1B project proposals suffer many of the same failings. These shortcomings will place additional challenges on the completion of the TraPac EIR because of uncertainties that they will introduce. I'm not sure what we can do about that here, except to make note of it.

Social Justice

The social justice impact on Wilmington cannot be measured by air quality and noise alone. Another significant social justice problem in Wilmington is caused by the complete loss of natural lands and direct access to the Pacific Ocean or the the waters of San Pedro Bay within that community. Access to natural areas is a social or environmental justice issue. It is often communities of color who today live in areas where there is the least community access to open space, natural open space and wild lands. Moreover, it is the same communities whose residents can least afford to travel to areas where such access is available.

The TraPac EIR cannot address these measures adequately since these are not adequately addressed in a Port Master Plan. Looking at TraPac in isolation, we cannot say how we would hope to accomplish the objective of providing this sort of access in Wilmington. It is possible that TraPac plan may interfere with providing access and restoring wetlands in this area and perpetuate the injustice to Wilmington.

It is ironic that the vast sums of money the port has spent on habitat restoration have been done in affluent communities where homes are priced in the millions of dollars, such as by Batiquitos Lagoon near San Diego. The Port of Los Angeles has done almost no such wetland restoration in San Pedro Bay — an area that once had some 3500 acres of wetlands and now has less than 35 — more than a 99% decline.

The largest San Pedro Bay area wetland restoration project the Port of Los Angeles has engaged in is Salinas de San Pedro, a salt marsh which is only about one and a half acres. Most of the residential properties nearest both ports are in low-income, minority neighborhoods. It is perhaps the only area on the California coast where residential property values drop approaching the water.

Not only has Wilmington lost its wetlands, it has lost all shoreline access. if a Wilmington resident wants to dip their toes in the ocean, they need to travel top the south end of San Pedro to Cabrillo Beach or to the east side of Long Beach. Wilmington may be the only community along the entire California Coast whose entire coastline has been industrialized and which an entire community has been landlocked in the process.

There is waterfront access along the Banning's Landing area. However, the "access" is from far above the waterline, on paved-over fill dirt held in place up by concrete walls.

Audubon reports from about 100 years ago, describe migratory birds as being so plentiful in San Pedro Bay they blacked the skies when they took off. In *Two Years Before the Mast*, Richard Henry Dana Jr. describes San Pedro Bay has having an annoying abundance of ducklings.

In the 1950s, it was easy enough to take a canoe from Wilmington up the Dominquez Channel to the Gardena Willows area and beyond. Machado Lake (in West Wilmington) was periodically part of the Los Angeles River, with the L.A. River flowing down North Gaffey Street entering the Bay near the east end of Channel Street in San Pedro. An additional water course from Machado also reportedly entered the Bay through in Wilmington in the West Basin. Today, Machado still drains into the Pacific via a concrete channel that runs on the east side of North Gaffey Street.

We do not expect the clock to be turned back 100 or more years in Wilmington. However, we do expect that port planning will provide for most of the restoration of San Pedro Bay's lost wetlands in the Wilmington area, since that is where most of the wetlands were originally located, and the Dominquez Channel provides an important water source to connect with the wetlands. Of the 350 acres of wetland restoration we seek in San Pedro Bay, 175 acres might be done in Wilmington.

One of or part of the possible area for this may conflict with the location of an on dock rail facility serving the TraPac facility. There are a number of Cal Poly Pomona student studies which explore the restoration of wetlands in this general area. Both sides of where the Dominquez Channel enters the Bay should be included as part of this wetland restoration.

Another possibility is to restore some of the wetland near the community itself, by moving TraPac to another location further east and away from the residential area. Such a wetland may be supported by water flow reestablished to Machaco Lake into this area.

The EIR should explore a variety of alternatives with respect to the restoration of wetlands in the Wilmington area.

The wetlands themselves may or may not be part of mitigation for the TraPac project. But even if they aren't, TraPac should not proceed unless a location and plan for wetland restoration is set—otherwise the TraPac project may inadvertently make such restoration more difficult in the future.

The only other alternative is to stall the TraPac project until a master plan specifies where wetland will be restored in Wilmington.

Balanced Trade Growth Alternative

The ports and the trade they create are part of the economic engine that contributes to the economy of Southern California and in turn the nation and the world. However, that economic engine has many externalized costs associated with it. There is some suggestion that those externalized costs may overwhelm the benefits locally, making the this engine more a liability than an asset. There are other national liabilities associated with this engine, such as the continually rising trade deficit.

Together, both economic and environmental externalities associated with this engine make is unsustainable. It is only a question which of local gridlock, global warming, the balance of trade deficit, an environmental justice backlash, rising energy costs or political instability (overseas) will be the first throw a big monkey wrench into this engine and how soon that might happen.

We can only endure the externalized costs this engine is creating for so long until those will also overwhelm us locally—and their is no moral justification that we should continue to do this for another day.

Of course, goods movement is not California's the only cylinder in California's economic engine. Tourism, the entertainment industry, aerospace, advertising and others play a role. Our objective should be at maintaining the economic viability of the entire engine, not just part of it.

Moreover, it is not wise for us to keep pouring resources into a component of that engine which is operating in an unsustainable fashion. If we truly want to seen green growth for trade, we need to work on balancing trade and removing waste from the system.

There are two ways to go about balancing trade. One is the reduction of imports. The other is the increase of exports. The two may go hand-in-hand.

We shouldn't ever look at a no-project alternative in the ports as doing nothing at all — but connect it with the objective of improving local manufacturing. Local manufacturing could offset some of our need for imported goods and might increase our ability to perform exports.

Part of the economic growth strategy the two ports have should involve facilitating trade talks that can lead to our exporting more goods through the ports. Given the trade imbalance we have, we should not look to bring more importers into the harbor at all, but should only look at providing for more export opportunities. Let the import opportunities come of their own accord.

We should measure growth of the ports not by the number of containers that move through the ports, but by the dollar value of the goods that move in those containers.

Simply counting containers, puts equal weight to shipping empty containers as it does to shipping full ones. It give equal weight to squandering fuel, human time and infrastructure as it does to actually moving goods.

As long as we use a poor metric to measure port growth, like counting containers, we are measuring the wrong thing and will be unable to make the right decision.

At some point, we may wish to take this further, by measuring the dollar value and durability of the good that move through the port. A television that lasts twice as long may cost far less than the two less durable t.v. sets it replaces. This increase of durability relative to cost and resource use is important in a world that is reaching its carrying capacity and in which the planetary standard of living is expected to rise. In measuring the growth of the ports, we should also consider the durability of the goods that pass through it.

So, part of the promise of growing the port green must entail measuring the growth in a green manner. If we measure "brown" growth, we'll always struggle to grow the port green.

Dynamic Environmental Impact Report

Any new EIR that the port produces, including the TraPac EIR needs to carry dynamic elements for period reviews (every five years) of progress and reassessment of technology and business practices used. This is not new in the EIR world. However, with the possibility that maglev or another technology may come along and start replacing conventional rail in a period of five to ten years, we need to be sure we've built in the needed flexibility in a planned review process to take advantage of such changes and to avoid overbuilding before we reach them.

Of course, it is our contention that today, conventional electric locomotives are the cleanest available technology. The only reason not to deploy them now may be that we have something far superior available in the near future.

Model Regional System

It is important to know how the TraPac facility is part of a regional transportation system with the appropriate systems analysis. Again, the TraPac EIR is hampered because no one has done an appropriate systems study of our regional transportation system—either the way we run it today or the way we may run it once we have advanced the technology we use. It is not really the responsibility of the TraPac EIR to do this, but it is increasingly hard to write such an EIR when that work hasn't been done. The pertinent question to answer for TraPac, is why is it sufficient to proceed with the TraPac EIR in this vacuum.

In a model regional system, we might assume that containers leave the port with a mix of three means:

1. All electric trucks or hybrid trucks that carry out short-haul trips only. These would comprise a smaller percentage of goods movement in and out of the ports than trucking has today. The shorter distance trucks would be all electric, longer distance hybrid. As technology improves, we would expect a greater percentage of all electric, fleet vehicles.
2. Maglev or some other very modern system that moves trains quietly with a high degree of modernization. It should be possible for this system to take individual containers as they are pulled from the ship without further handling on the dock and to dispatch them to their intended destination directly.

This sort of a maglev (or other) system would be deployed in an increasing area of coverage over time, starting with the port and fanning out perhaps to 100 or so miles in the Southern California area. Major cargo handling facilities (warehouses, distribution centers, intermodal yards, factories) would be located along the maglev backbone or network and have direct access to it.

The network would be run by a regional cargo movement booking system that would ensure just-in-time cargo shipments on the transportation network. Containers arriving in the the port would reach dockside just in time to be loaded on a ship and in the correct load order.

The economic characteristics of the system would be include a stiff capitalization effort with relatively low maintenance costs afterwards and long system durability. A high capacity and fast-moving system could move cargo with little noise or pollution in a very reliable manner and may offer an excellent ROI by keeping per-container costs low because of cargo handling efficiencies.

3. Electrified conventional rail for moving cargo out of Southern California. These tracks may begin in the port and simply leave Southern California. Or, conventional diesel or LNG rail may pick up containers cars from a maglev system in an intermodal yard located in an outlying area. The intermodal yard would use all electric switchers, with conventional trains pulling the loads from the yard.

The optimal balance of cargo between the above three is likely to vary as systems are build up. The objective would be to move as much cargo from the port by method #2.

Along with this, trucking would still play a major role in moving containers for short-haul distances to maglev intermodal yards. Trucks would also carry goods in and out of distribution centers to local deliveries. For reasons not-related to port goods movement, we'd expect local deliveries to rise further, with increased internet purchasing and a transportation-crunched driven return to neighborhood stores (and

away from large-scale regional shopping centers).

Short haul conventional rail and long haul trucking would fade out of the picture. The mix of trucking would have more short-haul jobs, which would be better for family life than long-haul trucking jobs.

As much of the electric power for the above as possible would be derived from strictly renewable sources (not coal, oil, natural gas or nuclear). Additional renewable power would be phased in over time.

Land use planning would be transportation oriented — so that cargo containers and the cargo within them travel the shortest distance possible to get to market. We would not send cargo or containers from the port out to inland valleys or deserts (such as Mira Loma or Victorville) only to turn around and bring them back to Los Angeles. Ideally, merchandise would take a least-energy route to get to market.

The transportation system would also use a consortium run scheduling system to book container movements and permit just-in-time operations. The internet consortium would provide a business model for this sort of activity.

All the above technology would be further designed (or modernized) to reduce or eliminate noise. To the extent conventional rail is used within metropolitan areas, it would be electrified, use the quietest track technology possible (such as continuous welded track), and possibly use innovative methods to couple and decouple railcars to reduce the impact noise that arises from conventional train building. Servo mechanism or other processes could help ensure crane lifts run quietly (it's not usually the "lift" part that makes the noise, but the drop.)

The maglev system would be designed to have very short headway between containers. Currently, this is a challenge for maglev especially with a switching requirement, and further research needs to be done to improve this. A short headway increases the number of containers a particular guideway can process, reducing the number of tracks needed to move a given number of containers. This is essential to keeping construction costs down and to minimizing sprawl (land use).

Newer warehouses may well need to be taller than conventional tilt-up, concrete boxes. This will raise the price per unit of floor space for warehouse construction. But, it may be essential if we hope to process cargo "in line" as it moves from the port directly to its destination, rather than processing cargo "out-and-back," where it first moves to an Inland Port and then back to Los Angeles. To the extent taller warehouses may help reduce the transportation cost, it may be prudent to provide financial incentive for taller warehouses (and perhaps a disincentive for shorter ones).

For purposes of stability and to promote livable cities, the labor used throughout this system should all be employee-based and pay a livable wage and benefits package. These jobs will form important careers in the Southern California economy. Our

economy will be handicapped if any of the workers in this industry don't make enough money to support their local schools and municipal services and to maintain decent neighborhoods.

A model regional system would avoid having any unneeded cargo handling or transfer point. As such, the ICTF and SCIG intermodal yards would be objects that the system would strive to optimize out of existence.

The system would move as many containers on as concise a footprint inside the port as possible. Ideally, it would reduce the size of each cargo terminal area dramatically while increasing the amount of cargo it could handle. (Yes, this is easy for me to say, but it really depends on the ability to have a short headway between maglev container departures and arrivals, and to implement just-in-time delivery methods to the port. Just how well can be done, depends on engineering work that would need to be done.)

This system will couple numerous inland locations with the port on a direct, high-speed link. It is important that inland locations work in strict coordination with work being done on the docks — and for this reason, the entire link and the inland cargo handling locations can be logically seen as an extension of the ports.

Greenhouse Gas Inventory

Gee, I didn't have a chance to read the greenhouse gas part of this EIR — which, if a document by itself, would be bigger than other "complex" EIRs I've worked on. I suppose it's all relative.

I hope it reflects good work.

There is one thing I would like to see in the final EIR regarding GHGs.

We need to estimate one half of the GHGs emitted by a ship on its transoceanic (or short sea) voyage to Los Angeles and then one half of its GHGs emitted on its voyage to the next port. These values may not be the same, due to different operating conditions and use of refrigerants, for example.

This is clearly outside of the jurisdiction of the port to do anything about. However, it is important for the port to estimate this figure and included it in its reporting. That's because, if the ports don't do this, no one else will.

We will need to understand this number to come to a better grip of the climate changing impact of shipping. Where short-sea shipping replaces trucking or rail, it would also be of interest for the figures to show the net GHG reductions by using more efficient ocean transport.

