



San Pedro Bay Ports Clean Truck Program

CTP options analysis

March 2008

THE BOSTON CONSULTING GROUP

Context for this document

This report presents the findings from an analysis of the San Pedro Bay Ports Clean Truck Program (CTP) conducted by the Boston Consulting Group (BCG) on behalf of the Executive Director of the Harbor Department

This report addresses the following deliverables per the Executive Agreement between BCG and the Harbor Department

- Defined operating model options for the CTP
- Economic evaluation of these CTP options in the context of the port drayage market
- Evaluation of the CTP options against the goals for the CTP
- Assessment of interdependencies and/or other undesired outcomes consequent to any operating model(s)
- Evaluation of the risks associated with each option and steps that could be taken to mitigate these risks

Agenda

Executive summary

CTP objectives

Operating model components and levers

- Range of options available within framework

BCG's analytical approach

BCG's evaluation of the operating model options

- Short term and long term impacts
- Key risks

Comparison of options and conclusions

Agenda

Executive summary

Executive summary (I)

Context and objectives

The Clean Trucks Program (CTP) is a core component of the San Pedro Bay Ports ('the Ports') Clean Air Action Plan (CAAP). Our evaluation of the CTP has as its goal determining what would best serve the Ports as a functioning enterprise to deliver on the following three sets of objectives which are critical to assuring the continued functioning, growth and vitality of these Ports as major transportation enterprises into the long-term future:

- **Environmental:** near term (removal and replacement of older "dirty" trucks) and longer term (a sustainable trucking market with participants who are have the income to properly maintain and update trucks to use new greener technologies)
- **Operational:** ensure continuity of port operations and deliver a sufficient supply of both trucks and drivers while in the longer term assuring addition of drivers needed for projected cargo growth in a manner that enables "green growth" and allows the SPB to retain its important role in the national and regional economy
- **Safety and security:** includes both vehicle safety (in terms of vehicle maintenance, repair and replacement from both environmental and operating condition) and driver safety (in terms of concession/ LMC responsibility for driver safety training and compliance as well as maximizing port security).

The drayage market in the Ports of Los Angeles and Long Beach today has the following characteristics:

- A large number (appx 16,000) of independent owner operators (IOOs) who contract with a large number (800-1,200) of Licensed Motor Carriers (LMCs) to provide drayage services on a regular basis (more than ~3.5 trips per week)
- IOOs, paid by the dray and also providing trucking services in other markets outside the port, provide a reservoir of trucking to accommodate the wide swings (+/-30%) in demand for drayage on a week-by-week basis
- Market is highly competitive with rates per dray bid down to low levels.
- Many costs are externalized and borne by others. These include: underutilized capacity and inefficiency which are borne by the IOOs; the costs of environmental impacts which are borne by the local communities in the burden of air pollution and serious and expensive impacts on human health and premature death rates; the costs imposed by drayage on the local community in terms of congestion, and neighborhood ingress/egress and parking of trucks; and the costs and complexity of ensuring safety and security in a highly fragmented market of IOOS and LMCs.
- As a consequence of this market structure truckers in the drayage market earn incomes below those of truckers in other comparable Southern Californian markets

The Port's objectives for the CTP span three dimensions: environmental, port operations, and safety/security

Environmental

- **Reduce emissions from drayage (port trucking) to comply with CAAP guidelines**
- **By 2011, CAAP requires an aggregate reduction in pollutants from all Port sources including trucks**
 - 47% DPM
 - 45% NOx
 - 52% SOx
- **Enable continued migration towards newer and cleaner technologies over time**

Port operations

- **Improve stability of the port trucking market**
 - establish stable drayage service business
 - avoid service disruptions during implementation
- **Ensure long term sustainability**
 - truck fleet and market participants
 - incomes that attract and retain drivers
- **Enable green growth**
 - improvements in trucking operational efficiency and reliability

Safety and security

- **Ensure compliance with safety standards**
 - vehicle safety
 - driver
- **Ensure that port security objectives are met**

Executive summary (II)

Approach and options evaluated

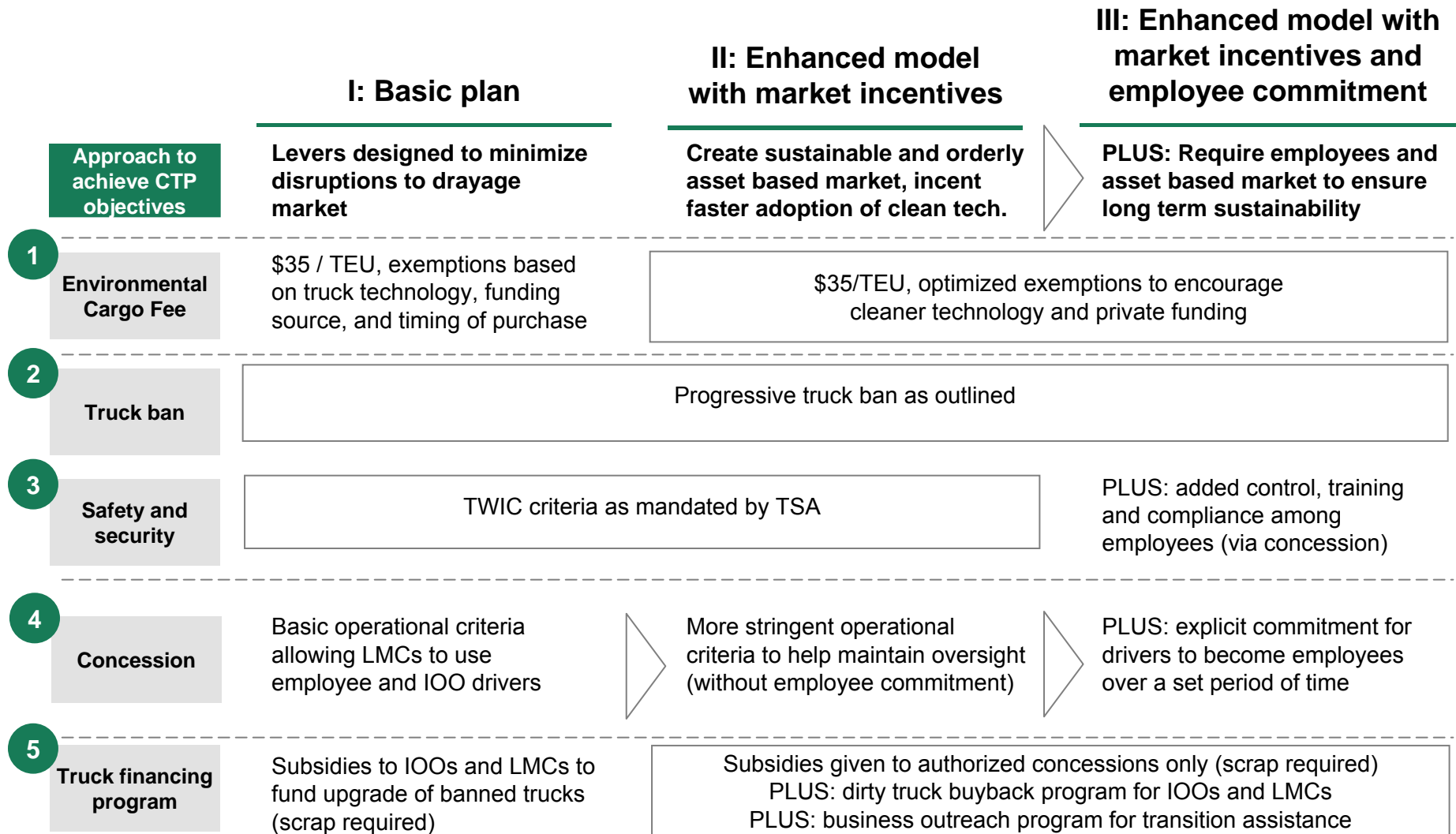
We analyzed the impact of the CTP on the supply and demand for trucking and labor (truckers) in the SPB drayage market and the extent to which alternative CTP models would meet the CTP objectives. Our approach addresses

- The different elements of the CTP: the environmental cargo fee; the truck ban; safety and security; the concession program; and the truck financing program;
- How these elements which work together as an interdependent system to mutually reinforce (or undermine) desired outcomes;
- How market structure (i.e. the number of market participants, their capabilities and financial structure) contributes to sustainability;
- How alternative CTP models would affect the externalized costs;

We examined three broad options for the CTP

- Under all of these options the proposed truck ban schedule and safety and security requirements remain constant;
- The first option we evaluated (Option I, or the “Basic Model”) provides for drayage by both employee truckers and IOOs, sets a minimum level of concession criteria for LMCs, and makes CTP public financing available to both LMCs and IOOs for new trucks. In addition exemptions from the ECF are included that are intended to encourage migration towards cleaner trucks in advance of the ban schedule
- The second option (Option II, or the “Enhanced Model with Market Incentives”) also allows for both employee and IOO drivers, tightens LMC concession criteria to further recognize the impact of marginal LMCs on the community and on sustainability, and limits CTP public financing to LMCs. In addition, the fees and exemptions to fine tuned to further favor the ‘greenest’ trucks and private investment. Taken together this interdependent set of elements may have the market effect of encouraging market consolidation and enable a long term sustainable clean truck program.
- Finally the third option (Option III, or the “Enhanced Model with Market Incentives and an Employee Commitment”) overlays onto Option II some form of employee commitment that will ensure the phasing in of employees into the drayage market over time. A range of different forms of employee commitment were considered.

We evaluated three options for the CTP



Executive summary (III)

Option I (basic model) & Option II (enhanced model with market incentives)

Our assessment is that Option I will satisfy the immediate near term environmental goals triggered by the truck ban but will fail to create a sustainable long term drayage market that will enable continued progress in improving environmental outcomes and enabling green growth

- As the concession requirements for LMCs are minimal and IOOs are enabled to get new trucks but with limited requirements for them to maintain and replace these trucks the drayage market would continue to be very fragmented, with marginal economics driving the returns for both LMCs and truckers.
- The local community will continue to bear the burden of a fragmented IOO pool (e.g. neighborhood parking) while enforcement of safety/security across many IOOs/LMCs continues to be challenging.

Option II, the Enhanced Model with Market Incentives, addresses these shortcomings by deploying a focused array of measures that *should* create the market conditions to encourage evolution of the SPB drayage market towards an asset based (i.e. LMC truck owning) market. Key elements in Option II and their effects are

- LMCs are enabled to invest in trucks but are subject to concession requirements that will discourage the marginal, under capitalized participants.
- Under Option II, drayage can be provided by employees or IOOs. This will allow an orderly progression from the market today and be flexible to absorb swings in demand
- Option II encourages a migration to an employee based trucking market as asset owning LMCs seek out drivers for their trucks. We predict over time that this should result in a migration of trucker incomes towards prevailing comparable levels
- Finally, by encouraging consolidation in larger more well capitalized LMCs with employees Option II should also create incentives for further continual improvement in the efficiency of the port drayage market.
- The key risks in Option II are
 - 1) That the above benefits may not be realized if, for example, private players continue to fund and support marginal IOOs, and/or create a 'marginal contractor' labor market for truckers who sub-lease LMC controlled trucks
 - 2) That the complex mix of employee and IOO based LMCs complicates the enforcement of safety and security requirements

Executive summary (IV)

Option III (enhanced model with market incentives and an employee commitment)

Option III, the Enhanced Model with a Market Incentives and an Employee Commitment, contains all of the elements found in Option II but in addition specifically favors an employee based trucking model by requiring all LMCs providing drayage services to commit to use employee drivers

- Uses concession and other CTP levers to *encourage* a move towards an asset based, and employee based model while also *requiring* LMCs to use some level of employees to provide trucking services

A requirement should guarantee the movement of the drayage market in the longer term towards an asset and employee based model. This will maximize the likelihood of creating a market in which the reciprocal obligations between the Port (granting a commission) and LMCs (providing drayage services) create a sustainable reliable supply of truckers attracted to stable and relatively well paying jobs in an operationally efficient and orderly drayage market.

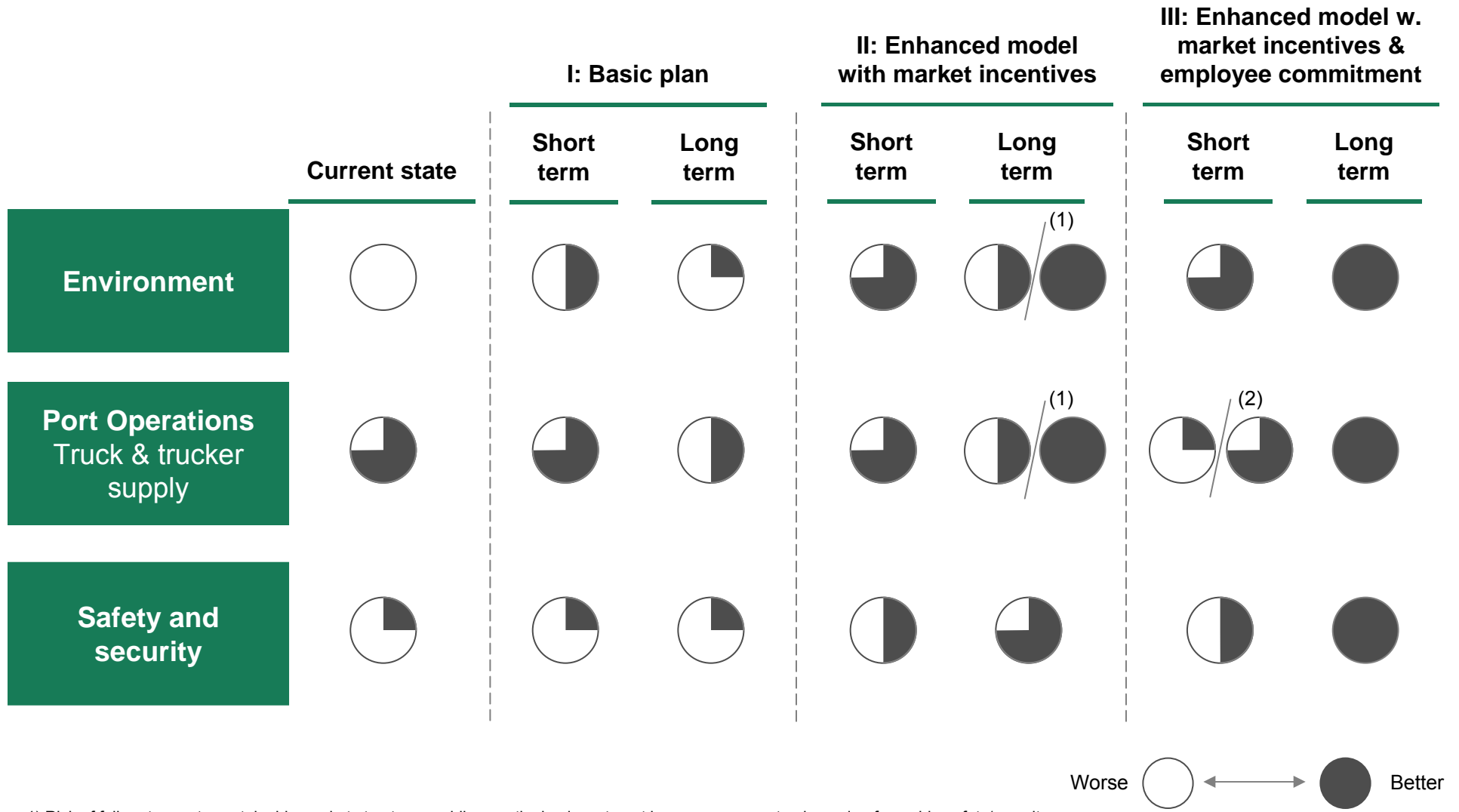
We considered four broad options for an employee commitment:

- A 100% employee driver requirement, phased in over five years;
- A fixed proportion short of 100% (e.g. 80%) requirement reflecting average load, also phased in over time;
- A requirement that each LMC controlled truck be associated with at least one full time employee
- A requirement imposed only on those who take public financing
- Of these options, the 100% requirement is recommended, being transparent, aligning incentives and easiest to administer

With a 100% employee commitment Option III will drive up wage rates more quickly than Option II and will also eliminate some proportion of IOOs who do not wish to become employees. However, our analysis shows that the impact of this increase should be manageable provided all market participants behave economically rationally.

- While trucker supply could fall by as much as 40%, over time other labor pools could be drawn on and additional diversion will be minimal.
- Key risk is that BCOs steer work away from the SPB on non direct economic grounds (e.g. through fear of future disruption or instability). This threat is material; e.g. members of the Coalition for Responsible Trucking alone control discretionary volume representing 14% of SPB cargo that could be readily diverted to alternative ports.

Our overall conclusion: Option III provides the best path to long term sustainability, but with near term risks



1) Risk of failure to create sustainable market structure enabling continuing investment in newer greener trucks and enforceable safety/security

2) Risk of near term disruption caused by BCO diversion

Note: Short-term represents a 1-5 year time span and considers system condition and risks, while long-term represents 5+ years and is primarily based on sustainability

Executive summary (V)

Comparison of options and conclusions

We compared all three options against the objectives of both short term (1-3 years) and long term (3-5 year+) environmental improvement, operational stability, reliability of supply of trucks and drivers, and safety/security

- Option I scores relatively well in the short term but falls well short of Options II and III in providing the conditions for long term environmental improvement, and reliability of supply. Option I will also complicate ensuring safety and security
- Both Options II and III are superior to Option I in terms of their potential to create a drayage market that meets the CAAP objectives (environmental, operational and safety/security) not only in the near term (the terms of the ban) but also in the long term (creates a sustainable, mature drayage market)
- Option II however carries the risk that long term sustainability is undermined if market participants or third parties are able to find ways to hold employee incomes below prevailing levels needed to ensure a reliable supply of truckers (e.g. by financing existing IOOs)
- Option III directly addresses this risk and offers the best guarantee of long term sustainability, but at the cost of introducing a new element of operational uncertainty.

One potential outcome could be that the ports of Long Beach and Los Angeles adopt different programs. The Port of Long Beach has adopted a program like Option I. Were the Port of Los Angeles to adopt either of Options II or III there is risk that volume of containers and supply of truckers could rapidly divert between the two markets.

- Under a combination of Options I/II while total diversion may be minimal the Port of Los Angeles, in adopting a “Enhanced Approach with Market Incentives” might find some of the desired outcomes (rapid adoption of the cleanest trucks, encouragement of more well capitalized LMCs and improvement in driver incomes to attract and retain a more stable workforce) undermined by the ability of marginal LMCs/IOOs to support themselves serving Long Beach alone
- A combination of Options I and III is more risky as the barrier to BCOs diverting their discretionary containers from Los Angeles to Long Beach would be minimal. We expect diversion of activity up to the capacity of Long Beach to absorb it, further exacerbating the operational and environmental stresses on the Port of Long Beach.

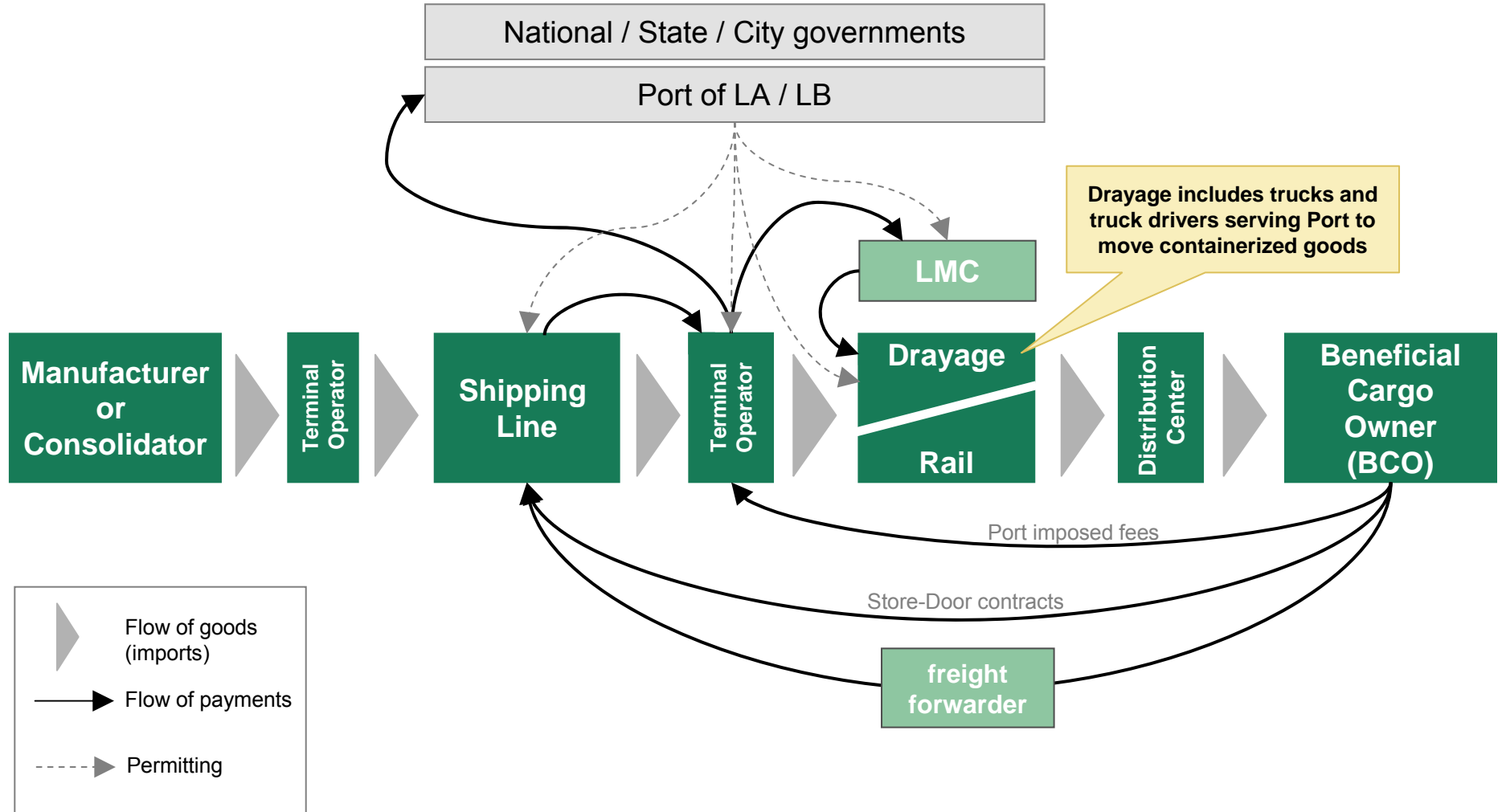
In conclusion we recommend that decision makers seek a unified approach to the San Pedro Bay Clean Truck Program. Decision makers’ preference between Options II and III will hinge on the relative weight they give to risk of LMC/BCO actions versus risk of market participants exploiting loopholes to sustain a lower wage, marginal economics based SPB drayage market and failure to achieve sustainable advantages in line with CAAP goals

Agenda

CTP objectives

To see if the CTP meets objectives, we looked at the dynamics of the goods movement system

Example: Import system



Note: BCOs often have influence over selection of participants in goods movement system, including port, shipping lines, LMCs and and others
 Source: Port interviews

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Safety and security

- **Ensure compliance with safety standards**
 - vehicle safety
 - driver
- **Ensure that port security objectives are met**

This is a challenging agenda: No other port undertaking so stretching, or all encompassing an initiative

	Name of programs	Trucking Initiatives	Comparison to CTP
Port of Seattle	<ul style="list-style-type: none"> • Diesel Emissions Reduction • Reduced Air Emissions – freight and other port actions 	<ul style="list-style-type: none"> • Broad usage of low-sulfur diesel fuel • Increased efficiency of truck routes • Redeveloped terminal layout and local road infrastructure 	<ul style="list-style-type: none"> • Shared focus on reducing emissions from short-haul trucks • No broad plan to replace trucking fleet
Port of NY/NJ	<ul style="list-style-type: none"> • Port Inland Distribution Network • Green infrastructure and transportation enhancements 	<ul style="list-style-type: none"> • Shift from trucking to rail transport of cargo • Relocated gates to reduce trucking delays 	<ul style="list-style-type: none"> • Goal to reduce dependency on trucking, not replace trucks • No broad plan to replace trucking fleet
Port of Houston	<ul style="list-style-type: none"> • Clean Air Initiatives funded by Texas Emissions Reduction Plan 	<ul style="list-style-type: none"> • Few goals directly related to trucking 	<ul style="list-style-type: none"> • Focused on non-truck port vehicles and engines • Funded solely by state grants without a port tariff
Port of Shenzhen	<ul style="list-style-type: none"> • Green Port: expansion of one of China’s major ports 	<ul style="list-style-type: none"> • Environmental evaluation in conjunction with port expansion • Utilize inland waterways and rail for short-haul routes 	<ul style="list-style-type: none"> • Relying on government subsidies to make “greening” cost effective • Focus on sustainable development to handle growth
Port of Rotterdam	<ul style="list-style-type: none"> • Port Vision 2020 	<ul style="list-style-type: none"> • Redevelop facilities, infrastructure, and processes for higher efficiency • Reduce non-essential road transport and reliance on trucking 	<ul style="list-style-type: none"> • Plan engage surrounding region with plans and projects • Reducing environmental impact, maintain competitive position
Port of Oakland	<ul style="list-style-type: none"> • Maritime Air Quality Improvement Plan (MAQIP) 	<ul style="list-style-type: none"> • Comprehensive Truck Management Plan 	<ul style="list-style-type: none"> • Shares many aspects of the CTP, but smaller in scale, and likely to follow CTP.
Port of Vancouver	<ul style="list-style-type: none"> • Truck Licensing System 	<ul style="list-style-type: none"> • Application based licensure system introduced to stabilize drayage labor market 	<ul style="list-style-type: none"> • Employment only, but viewed as having laid foundation for future environmental improvements

Source: web and press search
BCG Report 3-13-08 final.ppt

Today: Current state of SPB drayage market

Trucks

- ~16,800 frequent and semi-frequent trucks complete 80% of SPB drayage¹
- ~24,000 non-frequent trucks complete remaining 20% of SPB drayage¹
- ~2,000 frequent and semi-frequent trucks servicing the port are pre-1989²

Drivers

- Most drayage drivers (85% or more) are Independent Owner Operators (IOOs)²
- Estimated 15-22% of drayage drivers ineligible to receive TWIC certification²
- Drayage drivers earn an estimated average net income of \$11.60-\$12.70/hr³

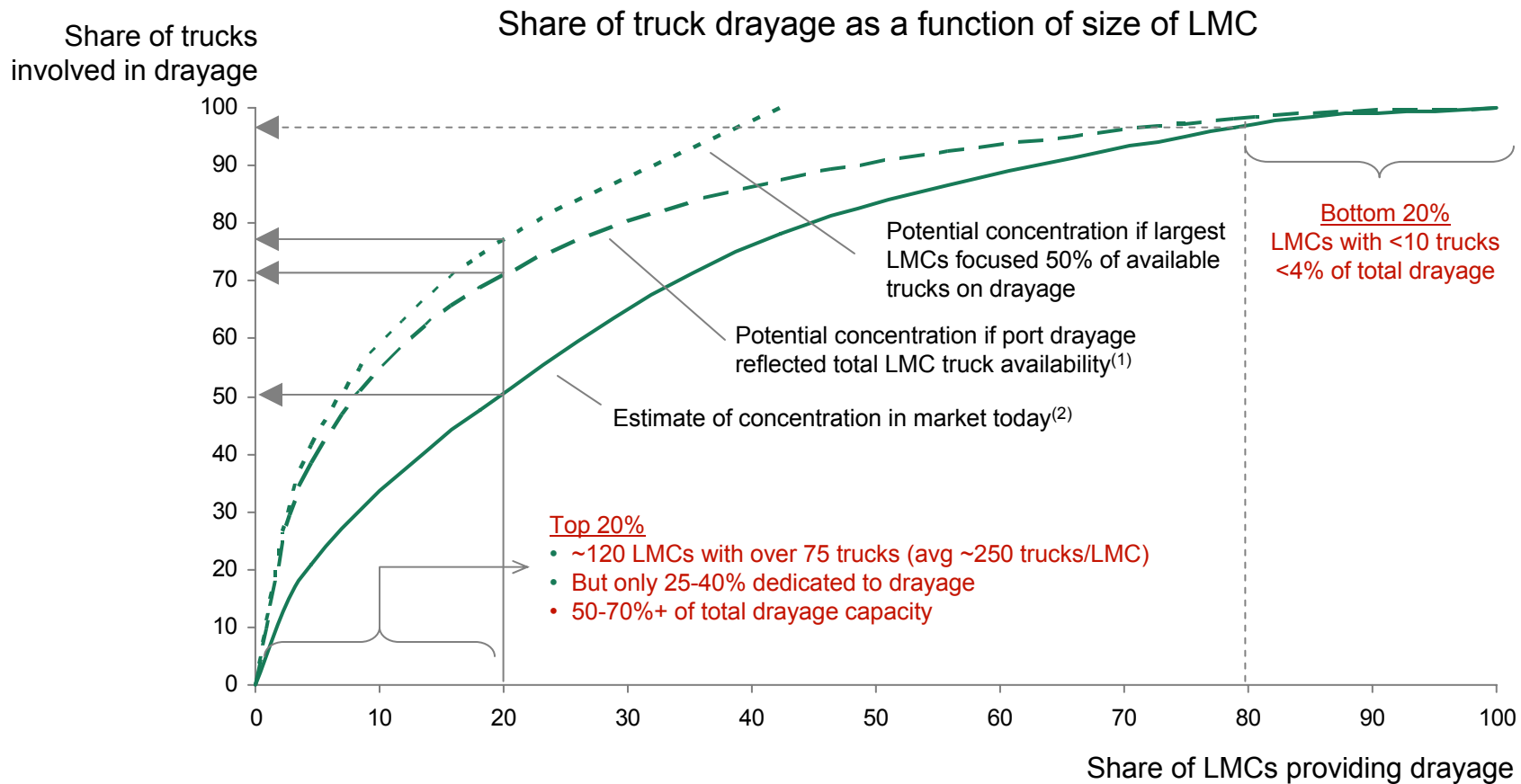
LMCs

- There are 800-1,200 LMCs with drivers servicing the SPB ports²
- Majority of LMCs are small, carrying the services of less than 75 IOOs⁴
- Driver payments represent ~68-72% of LMC revenues⁵
- Most LMCs have low margins (~5%) and few capital assets²
- Entrepreneurial culture, start in drayage but prefer more lucrative trucking⁴

1. SPB Ports CAAP Technical Report, trucks with at least 0.5 trips/day 2. John Husing, SPB Ports CAAP Economic Analysis of CTP 3. Kristin Monaco and CGR Management Consultants – SPB Ports driver surveys published 2007, incomes may vary due to fuel pricing 4. Interview with Tom Brightbill, CGR Management Consultants 5. Husing report and Interview with Bob Curry

Current drayage market is not very concentrated

Top 20% of LMCs represent only 50% of trucks providing drayage



Fragmented market imposes high administrative costs, loss of flexibility, and operational inefficiency

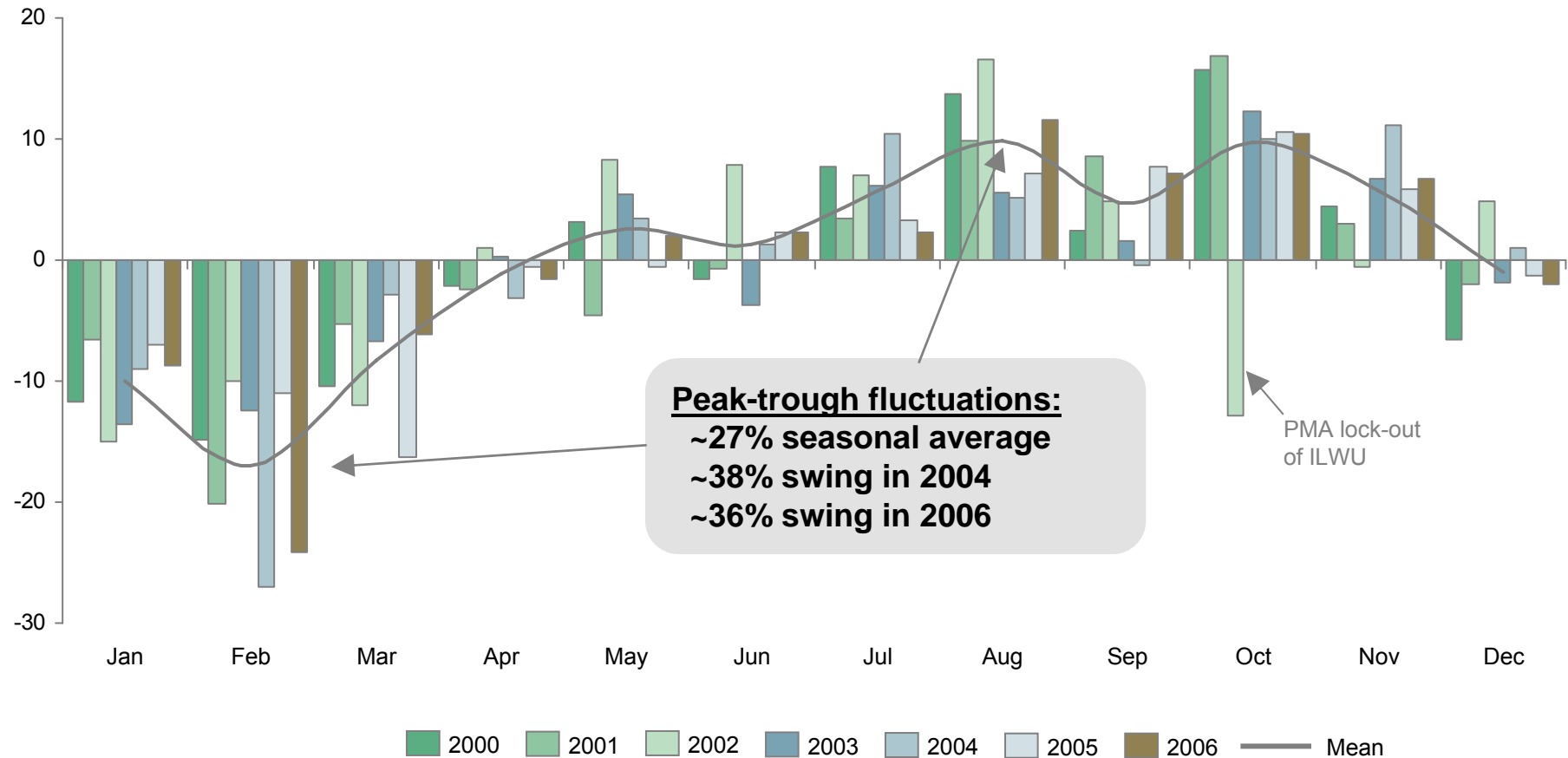
1. From Starcrest analysis. Includes all trucks entering the port. 2. Includes not only frequent and semi-frequent drayage trucks (estimated at 16,800) that complete ~80% of drayage work but also the large pool of infrequent trucks (~24,200) that complete the remaining ~20% of drayage work. 3. From Husing's report.

Source: Husing, SPB CAAP Economic Analysis of the Proposed CTP. Starcrest Consulting Group, Dratt Methodology for Estimating Heavy Duty Diesel Truck Activity at POLA and POLB

SPB has large fluctuations in goods movement demand...

Seasonality of TEU demand at the San Pedro Bay Ports

SPB ports total TEUs – normalized (%)

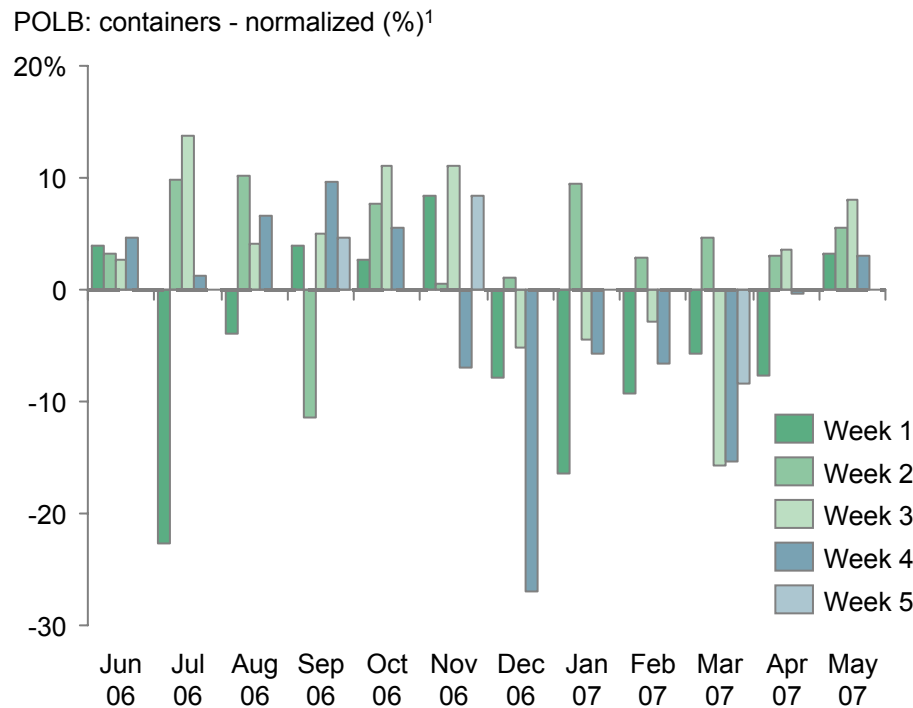


Source: Tioga Group and Global Insight, San Pedro Bay Cargo Forecast December, 2007. Data from POLA and POLB websites

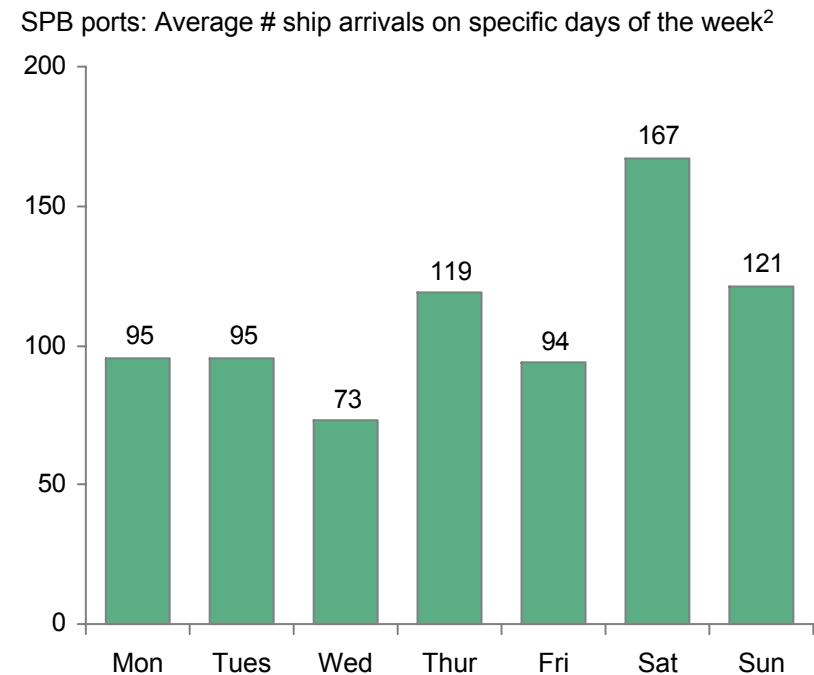
...Variation observed even on weekly and daily basis

Cargo movement demand and ship arrivals at the SPB ports

On a week to week basis, cargo movement demand can vary up to ~30%



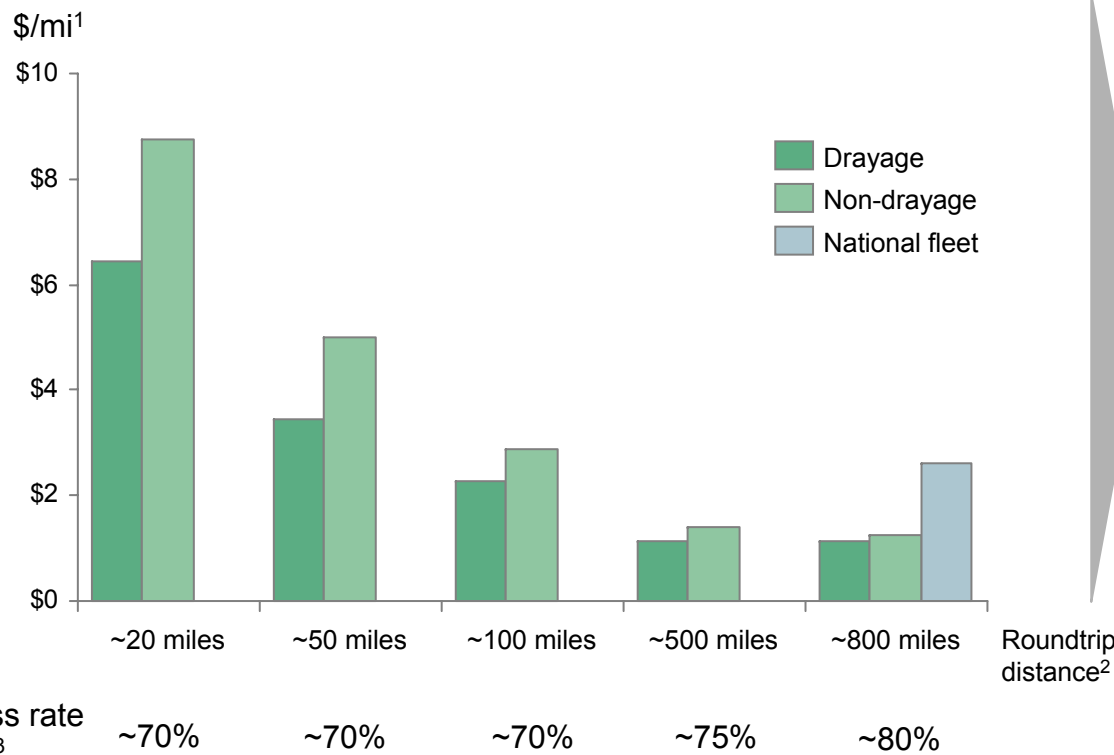
On any given day, the number of ships entering the ports can vary over ~50%



1. Normalization based on average weekly containers moved from Jun-06 to May-07 2. Average number of ship arrivals from April-Sept 2006
Source: Data from POLB (through Tom Brightbill). Dewry Container Shipper Insight Report (through American Shipper Feb 2007)

Even for comparable hauls, non-drayage work commands higher rates than drayage trucking

Trucking haul cost per mile comparison



Drayage vs. non-drayage

Premium of non-drayage over drayage is a result of³...

- LMCs have slightly less pricing power in drayage work
 - BCOs and shipping lines constrain LMC margins
- LMCs are compensated for the added capital and services provided in non-drayage work
 - Trailer/chassis
 - Container
 - Pick-up and drop-off at any location
 - Loading and unloading

But, base pricing for drayage is relatively high

- Wait time at the port terminal adds cost to all drayage hauls

Source: Drayage rate sheet from Jon Haveman (Beacon Economics), Schneider Trucking website, phone conversation with Brian Griley (Southern Counties Express)

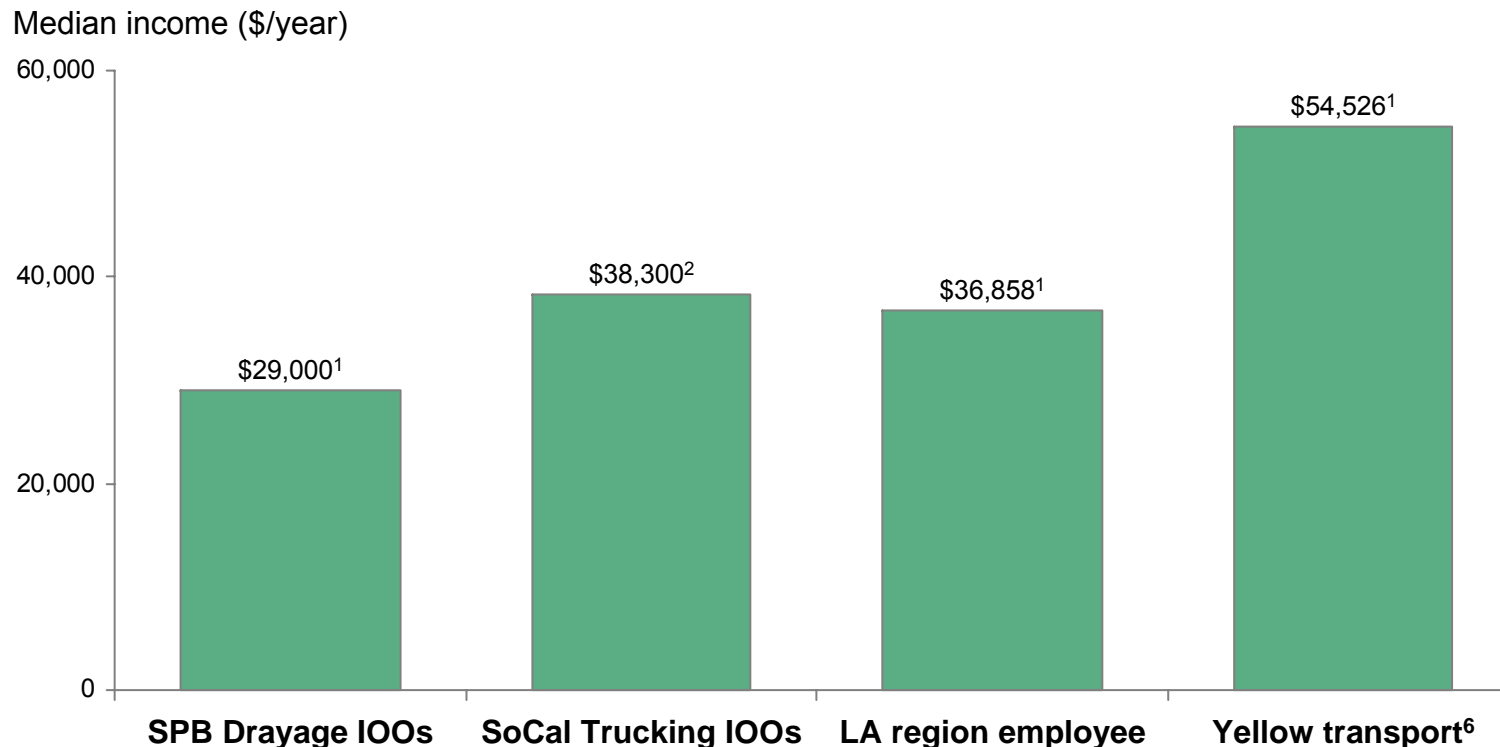
1. \$/mi calculated using \$ to driver per haul and % given to driver 2. Round-trip distance from Haveman's rate sheet or Google Maps, The miles correspond to hauls from the San Pedro area to Carson, Commerce, Ontario, Fresno, and Phoenix respectively. 3. According to Brian Griley (Southern Counties Express)

Current drayage market creates externalized costs

Cost bearer	Externalized cost examples	Estimated annualized cost savings (Year 5)
<p>Truckers and LMCs</p>	<ul style="list-style-type: none"> • Overall burden of operational inefficiency e.g. <ul style="list-style-type: none"> – truck under-utilization from port, freeway congestion – port congestion • Driver health and other benefits 	\$180-320M
<p>Public health¹</p>	<ul style="list-style-type: none"> • Premature death • Hospital admissions • Respiratory illness and acute symptoms • Workday and school-day loss • Restricted activity 	\$100-590M
<p>City and community</p>	<ul style="list-style-type: none"> • Enforcement and other administrative costs • Road maintenance • Vehicle and driving safety • Environmental damage • Residential neighborhood impacts from truck parking and ingress/egress 	\$210-830M
		<p>Total: \$0.5 – 1.7B</p>

1. Husing's SPB CAAP Economic Analysis report states cost estimated at \$1.7-10.1 billion over 2008-2025 with a median of \$5.9 billion (analysis by CARB)
 Sources: Multi-County GMAP Final Technical Memorandum 3, Tioga Group SPB Cargo Forecast, Starcrest Consulting Methodology for Est HDV Truck Activity at POLA/POLB, John Husing SPB CAAP Economic Analysis Proposed CTP, AAA/Cambridge Systematics: Crashed vs. Congestion: What's the Cost to Society, Texas Transportation Institute 2007 Annual Urban Mobility Report, Parentela and Cheema GIS-Based Risk Analysis for Commercial Goods Transport in Southern California; studies on costs of uninsured by studies by the State of Maryland, State of Texas, Kaiser, and the Institute of Medicine; BCG analysis

As a consequence, drayage incomes below other trucking segments



	SPB Drayage IOOs	SoCal Trucking IOOs	LA region employee truckers	Yellow transport ⁶
Calculated effective wage: ³	\$11.60/hr	\$15.32/hr	\$17.72/hr	\$22.21/hr ⁶
Avg. work week: ⁴	50	50	40 + 1.1OT	40 + 6.1 OT
Benefits: ⁵	No	No	Yes	Yes

Sources: CTP Technical report, Husing SPBP CAAP Economic Analysis Proposed CTP, CGR SPBP Driver Survey, Tom Brightbill, CRT and LMC interviews, BCG economic model
 1. Median incomes either taken directly from Husing report 2. Scaled up using Husing's numbers for 2005 growth to 1Q2007 wages 3. All numbers from Husing report 4. Assuming 50 weeks worked per year. Calculated with overtime (1.5 normal wage) taken into consideration 5. Value of benefits not included in wage 6. Predominantly regional or national long haul trucking

Despite low compensation, working as a drayage driver has some advantages over other trucking work ...

Drayage



- Local work, able to spend time with family when not trucking
- Short-term work, low commitment
- Familiar and tight knit driver culture
- Can utilize local options for refueling and maintenance



- Low compensation, providing a commodity service
- Local issues of traffic (I-710) and port congestion
- Poor working conditions (air quality)

Other trucking

- Higher compensation
- Avoid port related congestion and inefficiencies

- Atypical and somewhat inflexible work schedule
- Time not driving is often spent away from home

... And the option of doing so as an IOO brings its own mix of benefits and costs

Drayage IOOs



- Flexible work schedule, can work as much or as little as one wants
- Own trucks, can use for personal transportation
- Choose when to enter into or leave working agreement with LMC
- Family business, local work and familiar culture raises job satisfaction



- From supply perspective, less consistency/ reliability of driver source or control over driver behavior, training
- Low compensation due to providing a commodity service
- Must cover truck operating and financing costs

Employee Drivers

- Consistent work, paid by the hour
- Higher overall compensation including benefits
- Operating and truck financing costs covered by employer
- Possibility of better working conditions with union organization

- Lack of flexibility in work schedule
- Unable to earn more compensation by working additional discretionary hours
- If part of union, must pay dues and abide by labor agenda

Agenda

CTP operating model components and levers

There are five interlocking elements in the CTP

CTP components	Port's intent
1 Environmental Cargo Fee	<ul style="list-style-type: none">• Generate revenues for the grant program• Ensure BCOs internalize pollution costs• Credit positive investment in trucks and incent turnover of dirty trucks
2 Truck ban	<ul style="list-style-type: none">• Remove heaviest polluters in a timely fashion to ensure emissions targets are achieved
3 Safety & security	<ul style="list-style-type: none">• Comply with national security standards for port safety, enhance local enforcement• Improve vehicle safety and driver safety
4 Concession	<ul style="list-style-type: none">• Achieve environmental, operational, and safety / security goals through improved Port control and oversight of trucking fleet• Assure competition: adequate service level and level playing field• Assure driver supply: incomes and living standards to attract truck operators
5 Truck financing program	<ul style="list-style-type: none">• Incentivize replacement or retrofit of dirty trucks with newer, cleaner technology• Force scrapping of old trucks so emissions cannot be shifted elsewhere

Environmental Cargo Fee

Definition

A Port tariff paid by cargo owners, and assessed on every loaded container entering or leaving the Port via drayage truck

Levers

Illustrative range of choices

Amount

\$35 / TEU billed to BCO

Timing

Effective October, 2008

Exemptions

- \$0-\$35 by truck technology type, private/CTP funded?
- Before or after Oct 31st 2008?
- Flat or modulated over time?
- Requirement to scrap an old truck?
- Proportional to frequency of drayage at Ports (Y/N)?

Truck ban

Definition

A progressive ban on older, dirtier drayage trucks to help reduce port-related truck pollution over a period of five years

Levers

Truck criteria and timing

Model Year	Oct. 2008	Jan 2010	Jan 2011	Jan 2012
Pre 1989	Ban			
1989-1993		Ban		
1994-2003		Ban all un-retrofitted		
2004-2006				Ban all un-ret.

Illustrative range of choices

Exemptions

Day pass and extra fee for:

- Infrequent interstate trucking
- Trucks not meeting emissions criteria
- Not in the drayage trucks registry
- Other?

Safety and security

Definition

Ensure compliance with TSA mandated TWIC certification to ensure proper credentials and security clearance for workers with access to secure maritime transportation areas; reinforce with checks through the concession. Improve driver and vehicle safety through LMC accountability for equipment and training of drivers.

Levers

Illustrative range of choices

Criteria

Comply with TSA rules for port security - applicants disqualified for:

- Lack of legal resident and work status
- Conviction of certain criminal offenses

Timing

Likely starting January, 2009

- Determined by TSA

Enforcement (by Coast Guard)

Spot checks starting early 2009

- Full enforcement using biometric card scan in mid-2009

Concession

Definition

A set of requirements LMCs must meet in order to receive a concession to provide drayage services at the Port

Levers

Illustrative range of choices

Criteria

- Parking requirement (off street, designated lot, etc.)?
- Healthcare offering (none, proof of offer, mandate)?
- Place of doing business (Y/N)?
- Types of trucks in fleet?
- Truck maintenance and insurance requirements?
- Frequency of drayage for trucks/fleet?
- Employee commitment (0-100%, or ratio of truck to employees)?

Recipient

- Per LMC? Per truck? Allowance for flex capacity?

Number of concessions

- 1-unlimited (#)
- Transferable (Y/N)

Fee

- \$0-\$10,000+ per LMC? Fixed or auction price? Variable per truck?

Term

- One to 5 or more years

Truck financing program

Definition

A one time subsidy program financed by the ECF to help applicants acquire new, cleaner trucks

Levers

Illustrative range of choices

Amounts

- \$-\$\$\$ for each truck type (i.e., clean diesel, alt. fuel, hybrid)?
 - Given as grant for purchase or lease option
- 0-\$ for eligible retrofits?
- 0-\$ for eligible banned scrap trucks?

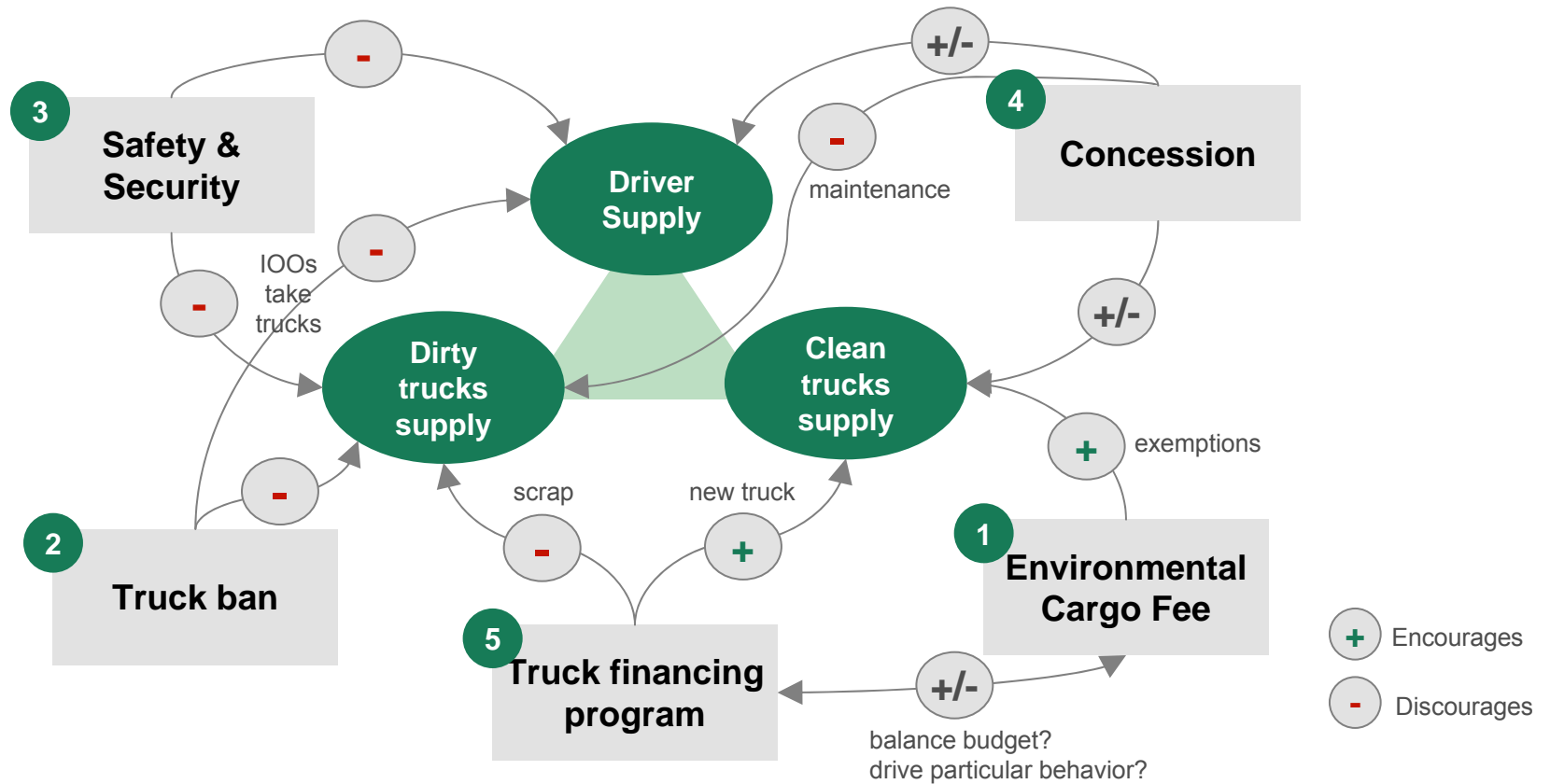
Financing criteria

- Financial or credit score?
- Dray frequency going forward for new truck (e.g., certain number of trips per month for X years)?
- Scrapping requirement or fee without a trade-in?

Financing recipient

- LMCs and/or IOOs?
- Differential programs for larger or smaller enterprises?
- Favoring frequent visitors with history of drayage?
- Favoring firms with employees?

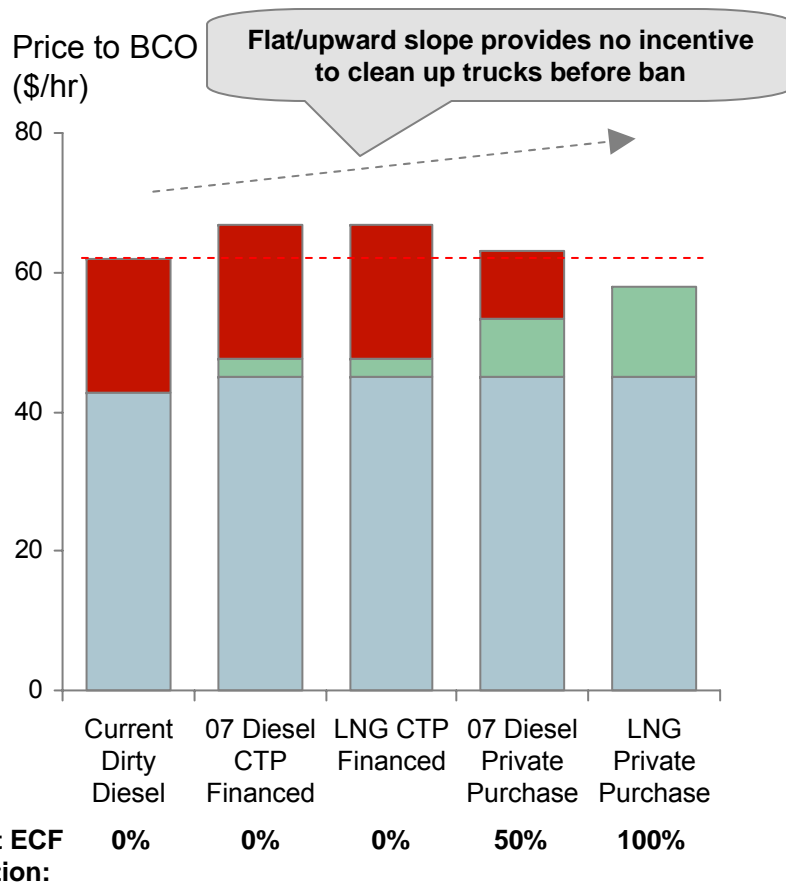
Our evaluation carefully considered the interactions between the different pieces of the CTP ...



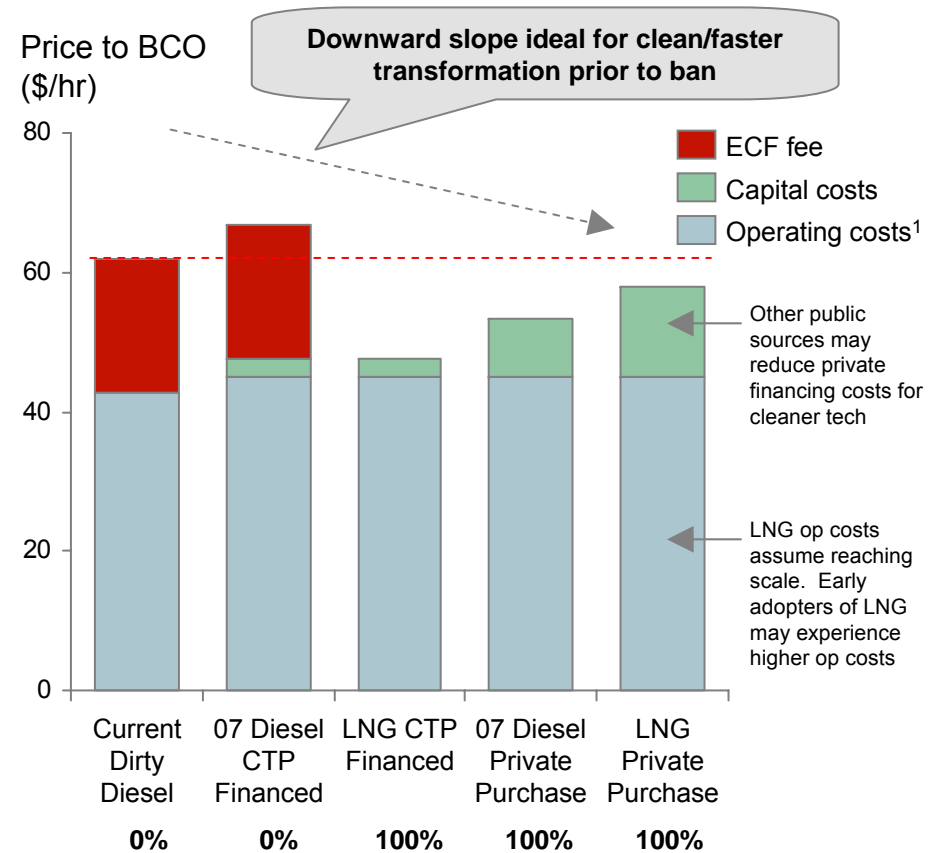
Source: BCG analysis; Moffet and Nichols Data "Container Breakdown by Mode with ACTA data.xls", "Economic Analysis of the Proposed SPB Clean Trucks Program", by John Husing and CGR Consultants

Example: ECF exemptions and financing programs can be optimized to incentivize green growth before the bans

Partial exemptions provide limited incentives towards clean technologies



Further reduced exemptions incentivize clean technologies *before the ban*



Notes: "07 Diesel" trucks meet 2007 standards; LNG one example of several alternative fuel options, additional analysis for CNG, Hybrid, Electric and other alternatives required.

1. Annual operating costs for 2007 Diesel and LNG trucks calculated to be roughly equal using a variety of secondary and primary sources; also includes driver cost and margins

Sources: CTP Technical report, Husing SPBP CAAP Economic Impact Report, CGR SPBP Driver Survey, Tom Brightbill, CRT and LMC interviews, BCG economic model and interviews

If CTP levers not well-defined, many things could go wrong

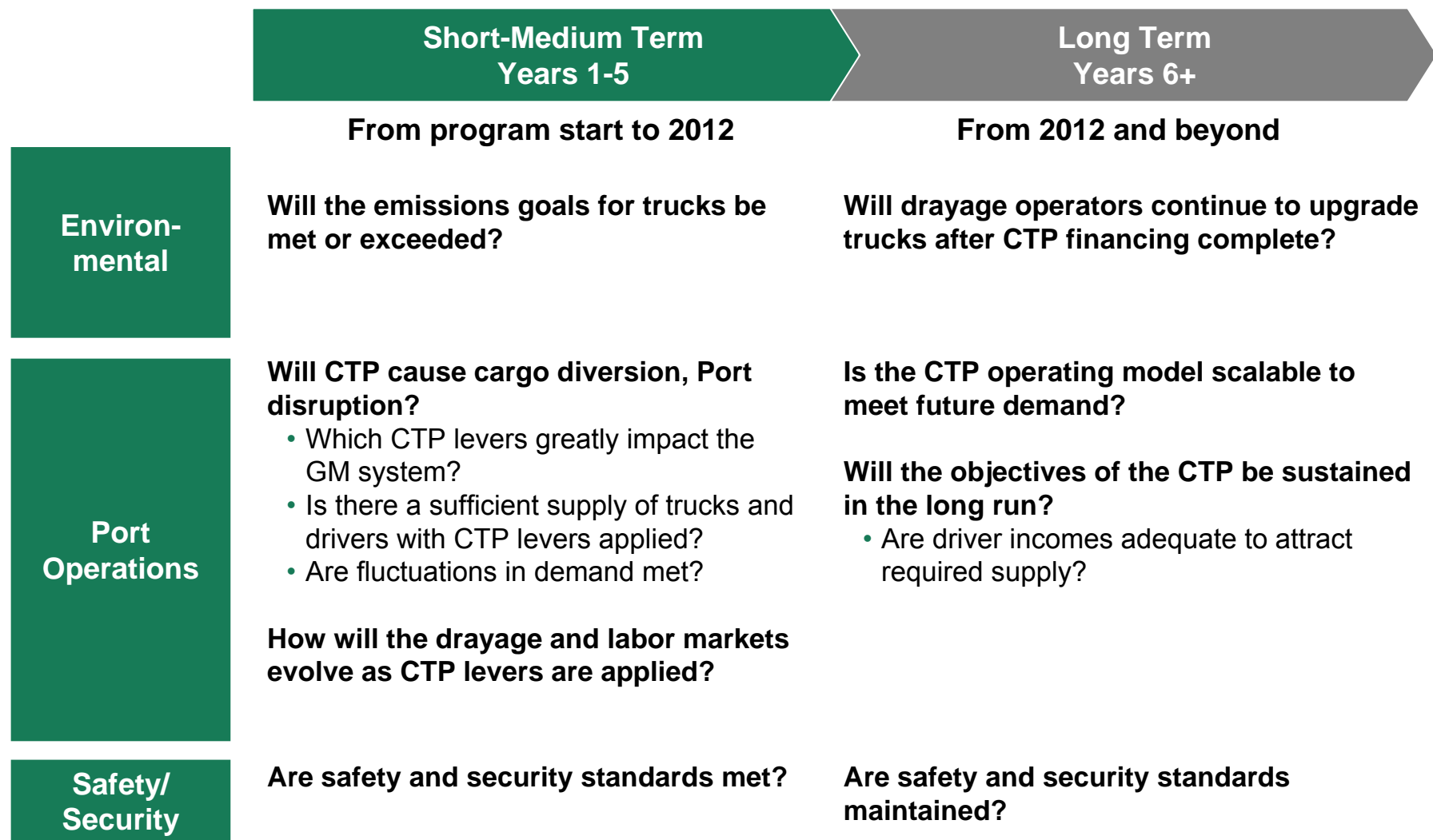
Potential risks

- 1. Lack of orderly progression from dirty trucks to clean trucks**
 - Too many trucks leave market at once leading to truck shortage
- 2. Disruption in market for trucking services**
 - Too many LMCs leave market abruptly and others do not enter
- 3. Loss of flexibility needed to meet fluctuations in goods movement demand**
- 4. Lack of supply of potential truckers**
 - Incomes insufficient to attract and retain truckers in drayage
- 5. Challenges in implementation and/or enforcement of CTP levers**
- 6. Excessive public financing burden and lack of private investment**
- 7. Lack of sustainability if market participants do the bare minimum needed to comply and do not build up capital to maintain and upgrade trucks**
- 8. Unintended consequences or gaming of the system (e.g. dray-off)**
- 9. BCOs divert cargo based on perception of above risks**

Agenda

BCG's analytical approach

In evaluating the likely impact of CTP we have examined two distinct time periods



We used information from many previous studies

Sources of secondary information used by BCG

American Shipper: The Monthly Journal of International Logistics. February 2007.

CGR Management Consultants. *A Survey of Drayage Drivers Serving the San Pedro bay Ports*. 2007.

Clean Air Action Plan Technical Report. San Pedro Bay Ports. 2006. <http://www.portoflosangeles.org>.

Goodchild, Anne, and Karthik Mohan. "The Clean Trucks Program: Evaluation of a Policy to Influence Marine Terminal Operations." Working Paper (2008).

Goods Movement Action Plan. CARB. 2007.

Haveman, Jon and Christopher Thornberg. *Clean Trucks Program*. Beacon Economics. 2008

Husing, John E. *Economic Analysis of Proposed Clean Truck Program*. 2007.

Leachman, Robert C., Theodore Prince, Thomas Brown, and George R. Fetty. *Port and Modal Elasticity Study*. Southern California Association of Governments. Los Angeles. 2005.

Moffatt & Nichol, and BST Associates. *Container Diversion and Economic Impact Study*. 2007. <http://www.portsoflosangeles.org>

Monaco, Kristen. *Incentivizing Truck Retrofitting in Port Drayage: a Study of Drivers At the Ports of Los Angeles and Long Beach*. Metrans. 2007.

Southern California Association of Governments. *Goods Movement in Southern California: The Challenge, The Opportunity, and the Solution*. 2005

Starcrest Consulting Group. *Draft Methodology for Estimating Heavy Duty Diesel Truck Activity at the Ports of Los Angeles and Long Beach*. 2006

The Tioga Group. *San Pedro Bay Cargo Forecast*. 2007

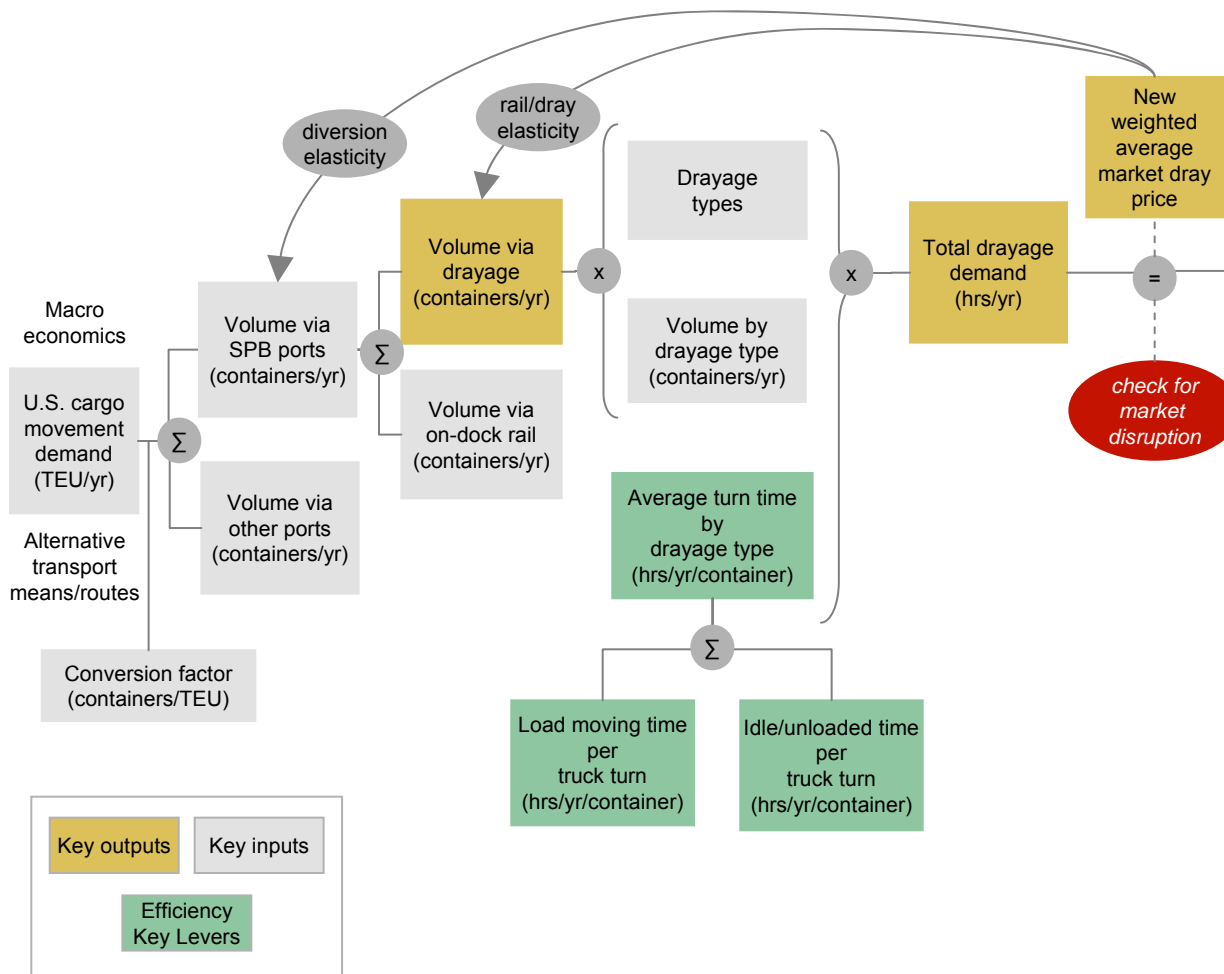
U.S. Department of Energy. *Norcal Prototype LNG Truck Fleet: Final Results*. 2004

**Our research was supplemented by interviews with
many study authors and market participants**

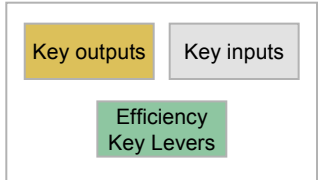
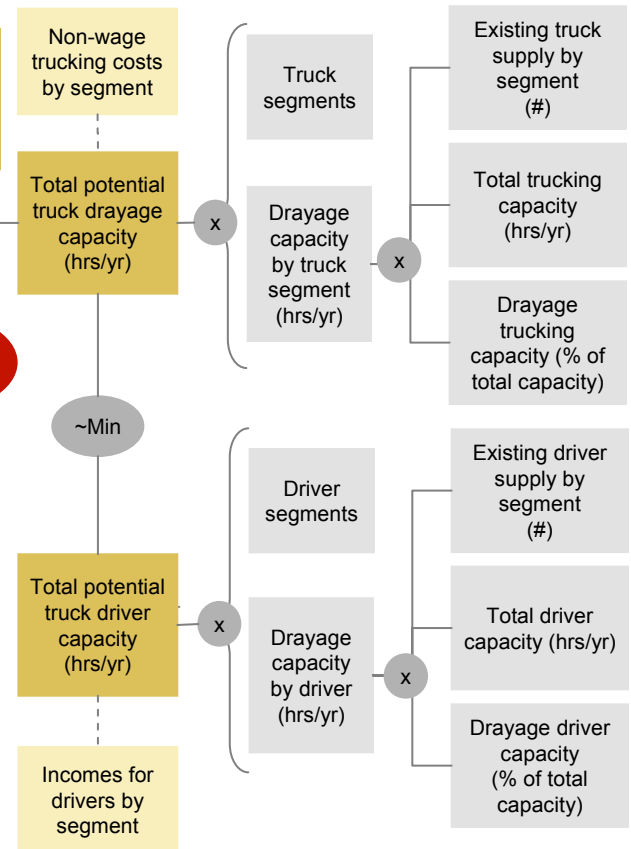
We built a rich drayage system model to evaluate the CTP

Analytical model couples drayage supply changes to pricing, cargo movement demand

Drayage demand by SPB Ports



Drayage capacity for SPB



Overall assumptions for our drayage system model

Private trucking fleets are utilized primarily based on their BCO's discretion (not market pricing)

- Fixed percentage of cargo is drayed by private fleets, unaffected by price changes

A fraction of infrequent drayage trucks act similar to private trucking fleets (not market pricing)

Open drayage market utilizes capacity primarily based on price, independent of clean/dirty distinction

All drayage haul types (e.g. off-dock, transload, etc) are performed by all trucks, independent of truck segment (e.g. model year, ownership type)

Drayage price to BCO is the only variable cost. Non-drayage costs do not change in our analyses (ship, dock equipment, rail, etc)

On-dock rail is roughly at capacity, therefore there is essentially no elasticity between drayage and rail

Drivers are modeled as FTEs, working 50 hours per week and 50 weeks per year

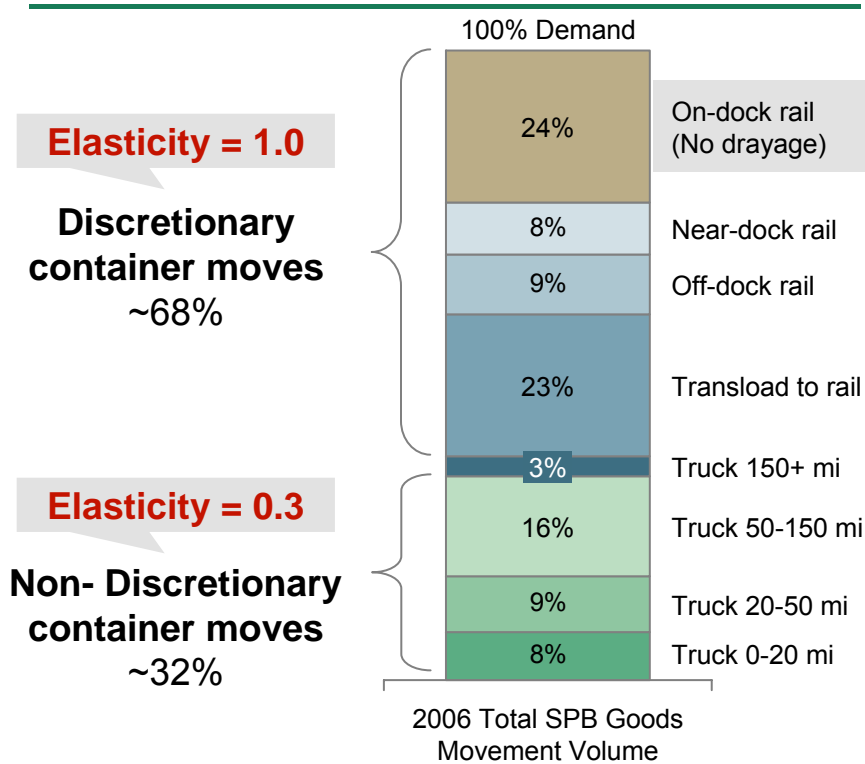
Overall port volume forecasted as flat through 2012 to allow isolation of pricing and diversion impacts

Operational efficiencies or drayage capacity improvements are not included in model

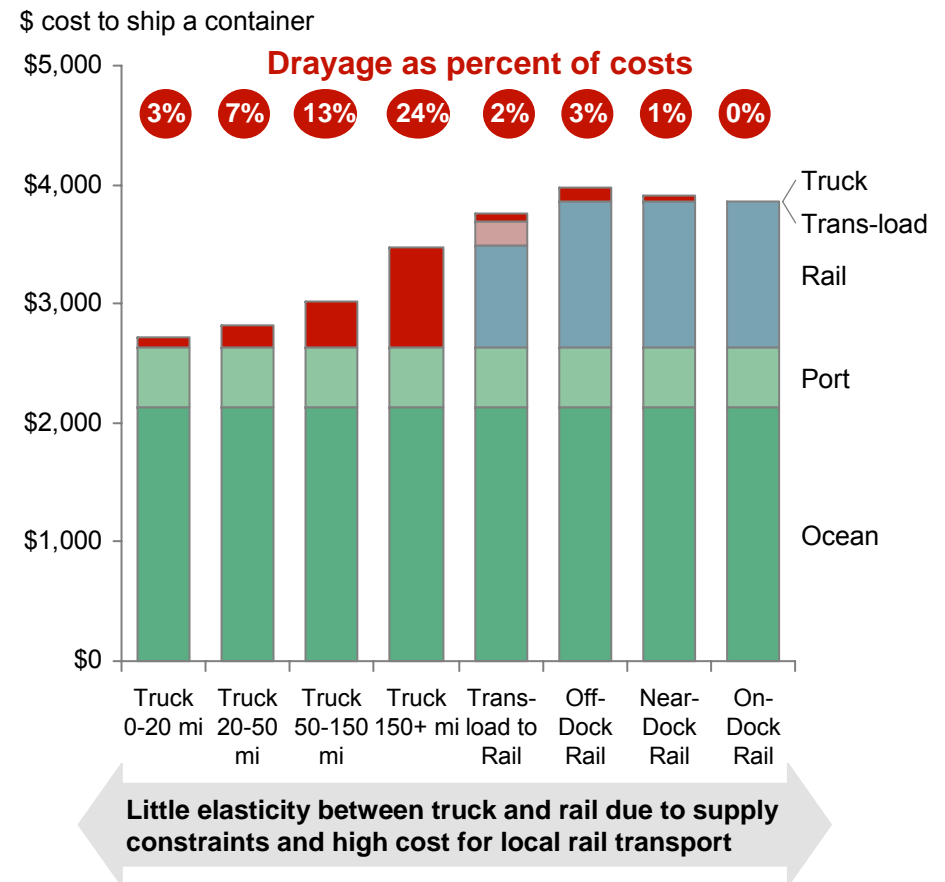
Our model is grounded on the price elasticity of SPB...

SPB 2006 container movement drayage costs and share of demand by transport segment

Non-discretionary cargo is relatively price inelastic¹

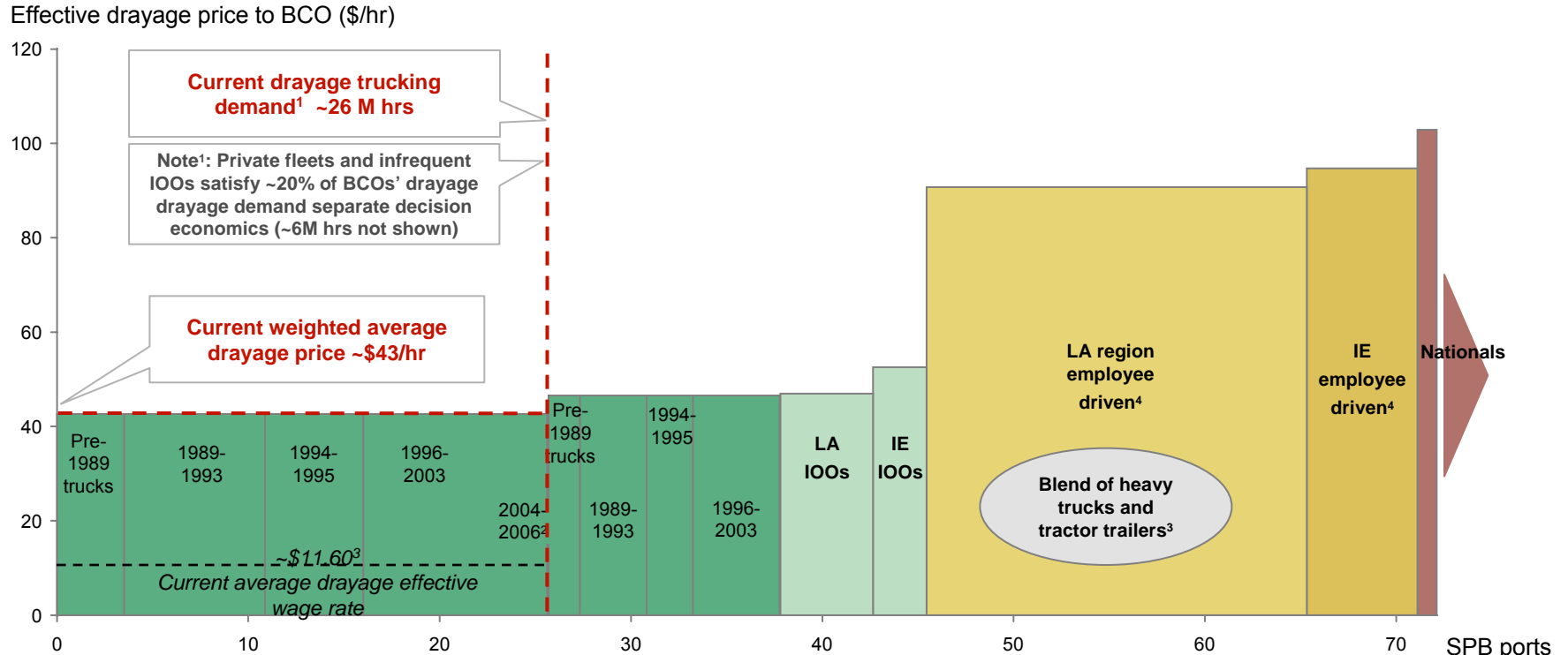


Trucking costs are a small portion of overall costs to ship a container¹



...A detailed understanding of trucking supply...

Illustrative trucking supply stack for current market segments to participate in SPB drayage

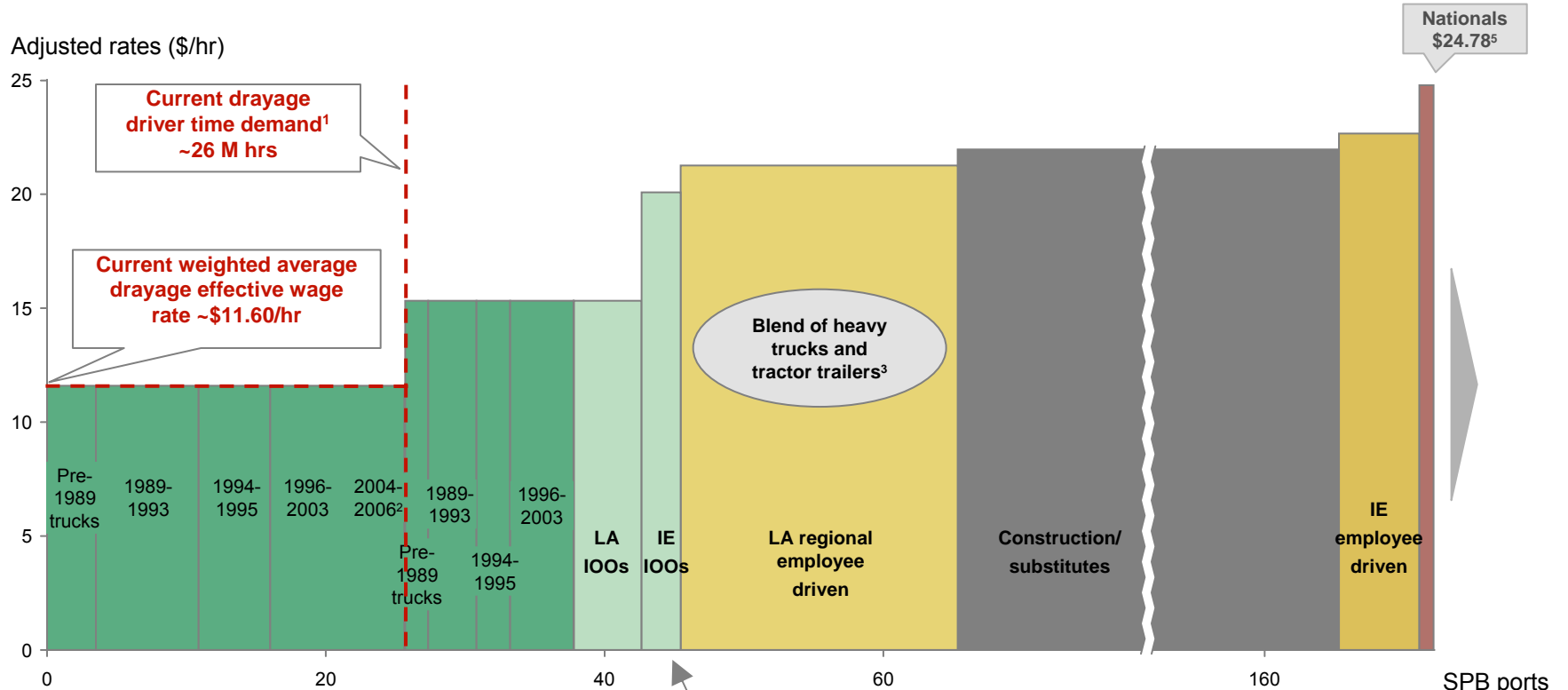


Truck segments:	Frequent/semi-freq Drayage	Freq/semi-freq: Non-drayage	LA IOOs	IE IOOs	LA employee driven	IE employee driven	SPB ports drayage supply (M hrs)
Trucks	~16K	~16K	~8K	~11K	~32K	~23K	
% total utilization time³	~70%	~30%	~25%	~10%	~25%	~10%	
Supply hours	~25.6 M hrs	~11.3 M hrs	~4.9 M hrs	~2.8 M hrs	~19.9 M hrs	~5.8 M hrs	

(1) Private fleets and infrequent IOOs account for ~6M hrs demand. (2) 2004-2006 supply too small to be seen on chart (3) Median income divided by typical hours worked per year. Estimates based on reports and conversations with John Husing and Tom Brightbill (4) Includes extra costs associated with employment including benefits and hour restrictions/overtime - Husing study Sources: CTP Technical report, Husing SPBP CAAP Economic Analysis Proposed CTP, CGR SPBP Driver Survey, Tom Brightbill, CRT and LMC interviews, BCG economic model

... And the market for truck drivers

Illustrative trucker supply stack shows potential drivers and their required rates for drayage labor

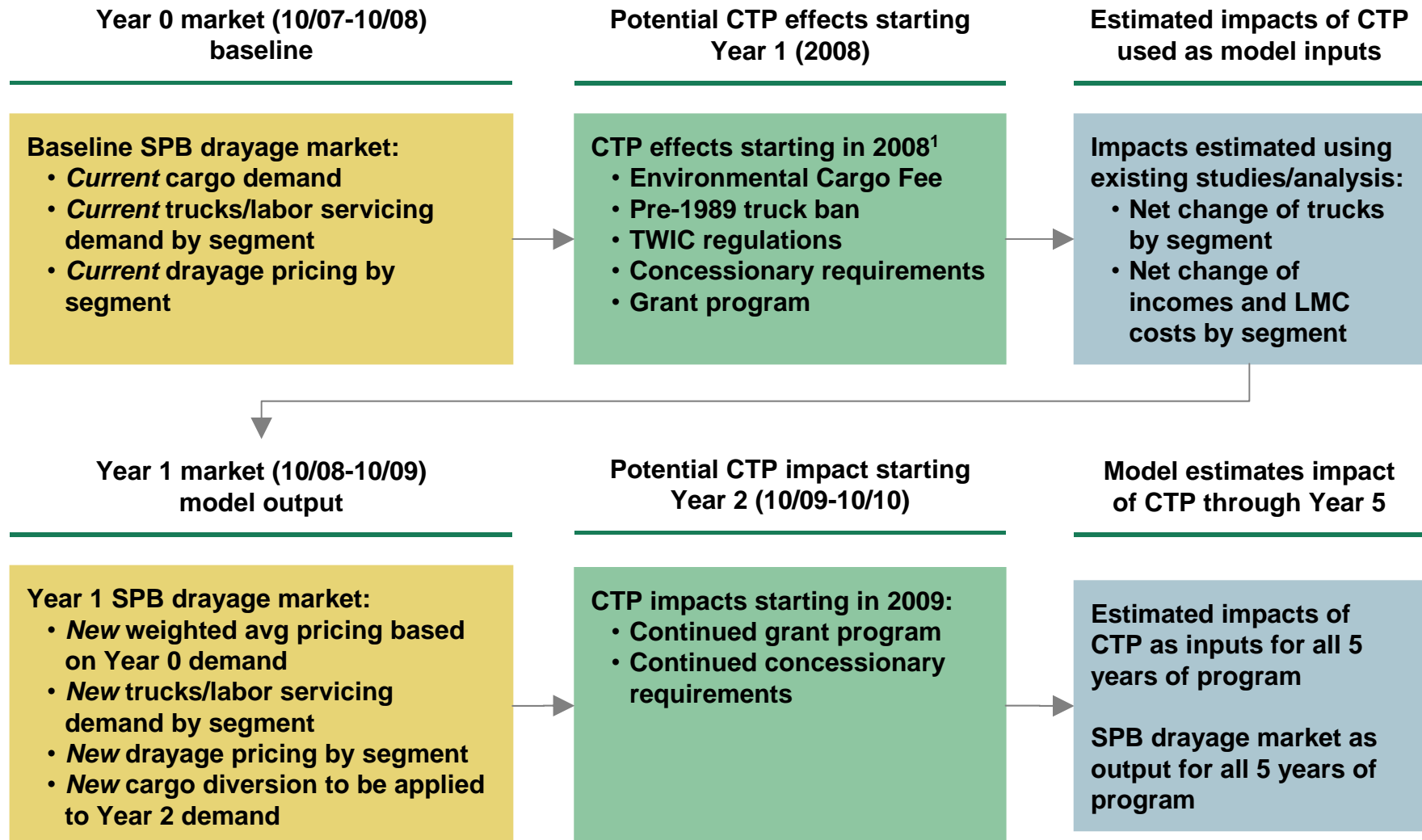


Labor segments:	Frequent/semi-freq Drayage	Freq/semi-freq: Non-drayage	LA IOOs	IE IOOs	LA regional employee driven	Construction and other substitutes	IE employee driven	SPB ports drayage supply (M hrs)
Drivers: ³	~16K	~16K	~8K	~11K	~32K	>150K ⁴	~23K	
Rate to attract to drayage: ³	\$11.60	\$15.32	\$15.32	\$20.08	\$21.27	\$21.97	\$22.67	

(1) Private fleets and infrequent IOOs account for ~6M hrs demand. (2) 2004-2006 supply too small to be seen on chart (3) Estimates based on reports and conversations with John Husing and Tom Brightbill and scaled by utilization % to arrive at supply hours (4) 2006 CA EDD data – for Los Angeles County construction (5) Average wage rate for UPS and Yellow trucking Sources: CTP Technical report, Husing SPBP CAAP Economic Analysis Proposed CTP, CGR SPBP Driver Survey, Tom Brightbill, CRT and LMC interviews, BCG economic model

Impact of CTP levers calculated for each year

Model mechanics rely on prior year output as input for following year

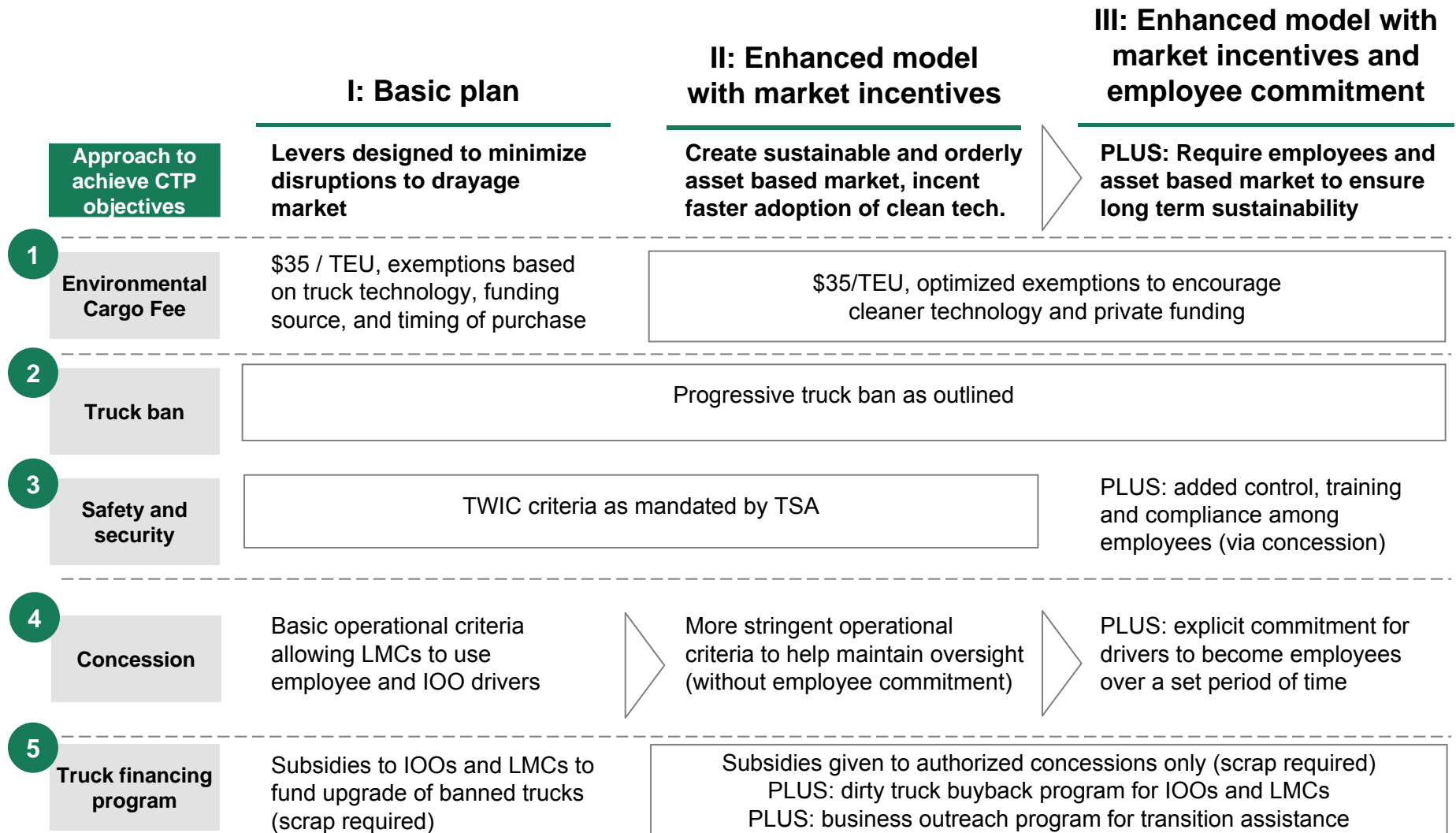


1. Impacts of CTP levers accounted for within the year they are implemented

Agenda

CTP operating model options and evaluation

We evaluated three options for the CTP



Option I: “Basic model”

	Lever	Rationale	
1	Environmental Cargo Fee	<ul style="list-style-type: none"> • \$35 / TEU fee with some exemptions: <ul style="list-style-type: none"> – Privately funded (post 10/08): CD with scrap (\$17.50 fee), LNG / alt. fuel with scrap (\$0 fee), (pre 10/08 same exemptions but scrap not required) – CTP funded: No exemptions 	<ul style="list-style-type: none"> • Encourage rapid adoption of cleaner truck technology • Promote the use of private investment
2	Truck ban	<ul style="list-style-type: none"> • Progressive ban on the dirtiest trucks: <ul style="list-style-type: none"> – <u>Oct 1, 2008</u>: All pre-89 trucks – <u>Jan 1, 2010</u>: All 89-93 and un-retrofitted 94-03 – <u>Jan 1, 2012</u>: All trucks not meeting 07 standards 	<ul style="list-style-type: none"> • Ensure heaviest polluters are removed from the Port drayage market
3	Safety & Security	<ul style="list-style-type: none"> • Comply with TWIC criteria as mandated, but full enforcement not active till January, 2009 	<ul style="list-style-type: none"> • Compliance required by law, but the infrastructure required for enforcement may take time to implement
4	Concession	<ul style="list-style-type: none"> • <u>Requirements</u>: TWIC/registered drivers, prove health insur. offered, clean truck compliant, RFID tags, truck maint. schedule, and follow existing on-street parking restrictions • concession for 5 years, fee of \$250 plus \$100/year/ truck • Allows LMCs to use employee and/or IOO drivers, preference for drivers with previous port drayage work 	<ul style="list-style-type: none"> • Provides Ports with greater oversight of trucking operations • Allows opportunity for large portion of current drayage operators (LMCs and IOOs) to continue serving the market
5	Truck financing program	<ul style="list-style-type: none"> • <u>Criteria for financing</u>: scrap old trucks, must be frequent / semi-frequent, priority given to oldest trucks (pre-89) and applicants with previous port drayage work • <u>Financing options</u>: <ul style="list-style-type: none"> – Lease to own (7 years, \$500-700/mo), – Grant for purchase (\$60-75K / CD, \$90-120K / LNG), – Grant for retrofit (up to \$20K, can re-apply for purchase grant in future net of retrofit funds) 	<ul style="list-style-type: none"> • Subsidies will provide one time assistance to ensure sufficient truck supply • Most IOOs assumed to need financial assistance to switch to using a clean truck

Option I evaluation: Environmental

Benefit/ risk	What we think will happen...	..and why
+	Satisfy near term environmental goals as triggered by truck ban; continued emissions reductions dependent on CARB schedule	ECF exemptions and financing insufficient to favor cost structure of cleaner trucks; lack of IOO financial capabilities to invest
-	Risk of failure to create a sustainable long term drayage market that will enable continued progress in improving environmental outcomes and enabling green growth	Concession requirements for LMCs are minimal and IOOs are enabled to get new trucks but with limited requirements to maintain them, risk that IOOs unable to maintain trucks to standards
-	Newer diesels used but risk that cleanest technologies (e.g. LNG, Electric, Hybrids, others) minimally adopted	Majority of IOOs unable/unwilling to privately fund cleanest alternative fuel trucks; lack of exemption for CTP funded alt fuel vehicles

Option I evaluation: Port operations

Benefit/ risk	What we think will happen...	..and why
+	No transformative change in port operations or drayage market	Minimal concession requirements and broad access to financing will not materially impact current market participants
+	Total diversion will be minimal – approximately 1% based on direct economic-based decisions resulting from drayage price increase	Very fragmented and competitive market will not result in significant drayage price increases
-	Risk that future growth and efficiency improvements are limited	Enforcement of standards and operational improvements more difficult with highly fragmented market; low pricing and low barriers to entry prevent investment of needed capital

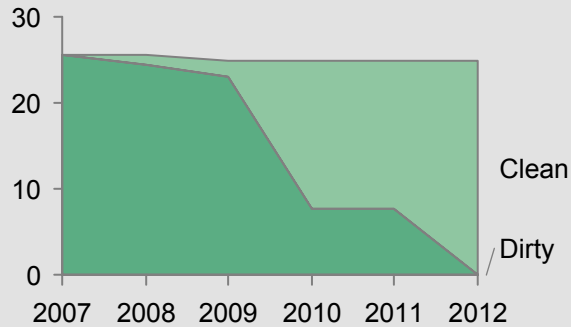
Option I evaluation: Safety and security

Benefit/ risk	What we think will happen...	..and why
-	Drayage market will continue to be very fragmented with marginal economics driving returns for both LMCs and truckers	Concession requirements for LMCs are minimal and IOOs are enabled to get new trucks but with limited ability/motivations to maintain and replace them
-	Risk that local community will continue to bear the negative externalities of a fragmented IOO pool (e.g., neighborhood parking)	Very fragmented market with marginal economics results in similar community externalities to current market; LMCs have no incentives to internalize costs
-	Risk that enforcement of safety/security across many IOOs/LMCs continues to be challenging	No reciprocal obligations: LMCs not accountable for safety/security; IOOs incentivized to cut corners

Option I: Analytical evaluation

Environmental

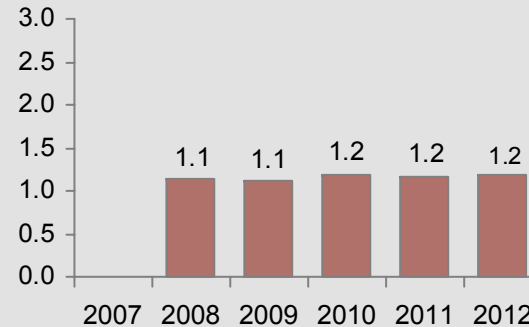
Total SPB drayage trucking time (M hrs)



- Dirty trucks leave system when banned
- Un-banned dirty trucks pick up some slack during early years

Operations

Cumulative Diversion (% SBP demand)



- Cumulative diversion reaches ~1.2%

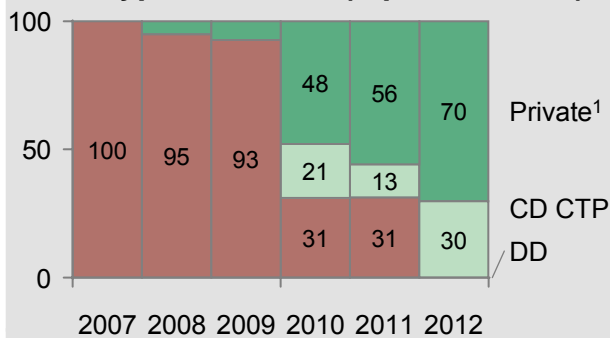
Drayage market

Avg. drayage income (\$/hr)



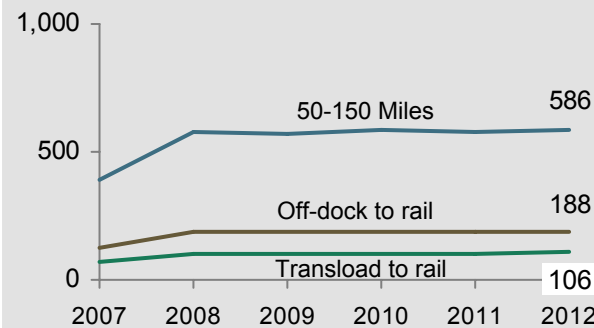
- Income increases to ~\$12.3/hr in first year due to TWIC, but stays flat in out years due to un-restricted driver supply

Truck type utilization (equivalents, %)



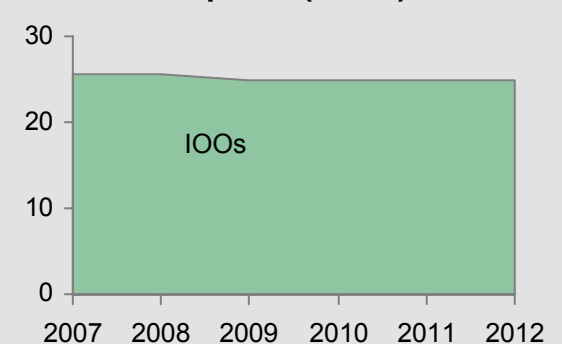
- Lack of exemptions on CTP funded "clean" truck incentivizes private funding

Avg. drayage costs per container (\$)



- Spike in first year due to impact of ECF and TWIC

Driver time required (M hrs)



- 100% IOOs throughout all 5 years

1. Private includes blend of clean diesel and alt fuel, mix will depend not only on CTP incentives (e.g. ECF exemptions) but also factors not modeled such as private funding, tax treatment etc
 Source: BCG drayage market supply and demand economics model, March 2008

Option II optimizes the CTP levers in an effort to accelerate achievement of a sustainable drayage solution

Component	Design principle	Possible model levers
1 Environmental Cargo Fee	<ul style="list-style-type: none"> Incent cleaner trucks ahead of ban, green growth Encourage private investment 	<ul style="list-style-type: none"> More exemptions on cleaner trucks to help level costs More exemptions on privately funded trucks
4 Concession	<ul style="list-style-type: none"> Create orderly market Cover admin costs Ensure sufficient supply of trucks and drivers Improve security Improve safety Improve worker conditions Reduce negative impacts on local community 	<ul style="list-style-type: none"> Concessions available only to LMCs that meet criteria Concession priced to ensure LMC commitment and adequate administration/enforcement Concession requirements need to prevent LMCs from creating a drayage labor spot market
5 Truck financing program	<ul style="list-style-type: none"> Subsidize cleaner trucks Reinforce orderly market Support upstanding small businesses Reinforce sustainable market 	<ul style="list-style-type: none"> More financing on cleaner trucks Truck financing only available to LMCs Financing needed for a small business program for IOOs to become LMCs Scrap program open to all SPB drayage participants, oldest vehicles first

Sustainable, Scalable

Our rationale in Option II is to encourage long term development of an *asset based* drayage model ...

	LMC asset based	IOO ownership
Market dynamics	<ul style="list-style-type: none"> • LMCs own and maintain trucks, employ drivers <ul style="list-style-type: none"> – Higher barriers to entry 	<ul style="list-style-type: none"> • Drivers own and maintain trucks, independently contract with LMCs <ul style="list-style-type: none"> – Low barriers to entry
Incentives	<ul style="list-style-type: none"> • LMC motivated to maximize efficiency <ul style="list-style-type: none"> – Of truck and driver • LMC must internalize costs: total costs integrated into decision making 	<ul style="list-style-type: none"> • LMC and IOO motivated to minimize costs, IOO motivated to maximize work • Many costs externalized: only variable costs integrated into decision making
Risks	<ul style="list-style-type: none"> • Higher cost of employees and assets <ul style="list-style-type: none"> – Higher compensation and wage rates to attract employees – Overhead costs of employee drivers, trucks and maintenance • Less flexibility to cope with peaks, e.g. <ul style="list-style-type: none"> – Overtime, temp, part time – Access to additional trucks 	<ul style="list-style-type: none"> • Unreliability of supply as IOOs service many different markets • Few incentives for system wide operational efficiency • High administrative costs and burden • Risks if marginal LMCs/IOOs unable to comply with new standards
Enforcement	<ul style="list-style-type: none"> • Easier as LMC is accountable for both employees and assets 	<ul style="list-style-type: none"> • More difficult with large number of IOOs

Asset based trucking firms are likely to make their own environmental and efficiency improvements

Illustrative examples

S.C. Johnson

Wal-Mart and logistics partners

Description

- Multi-national manufacturer of consumer products and chemicals

- Largest retailer in the world

Key transport issues

- Trucks were not used at their optimized load capacity

- Aging truck fleet
 - Mainly diesel trucks
 - High greenhouse gases footprint

Initiative

- Truck-load optimization
 - Definition of optimal load per truck
 - Introduction of multi-product loads

- Upgrade truck fleet
 - Auxiliary power units
 - Energy-efficient tires
 - Enhanced trailer aerodynamics

Results

- 1,900 tons of greenhouse gases eliminated
- Used 2,100 fewer trucks
- Used 170K gallons less diesel
 - \$1.6M cost savings

- 7M tons of greenhouse gases eliminated
- Less 600M gallons of diesel used
 - \$1.8B saved

Source: Company websites; other web research
BCG Report 3-13-08 final.ppt

Option II: Key adjustments to Option I to encourage a long term sustainable asset based drayage market

1. Incent cleanest trucks faster

- More ECF exemptions on cleaner trucks to lower all below “dirty” diesel
- Grandfather ECF exemption on all clean trucks prior to October 1, 2008
- Payout for scrap of trucks

2. Create sustainable orderly market and enable productivity gains:

- More ECF exemptions on private investment in cleaner trucks
- Strict concession criteria to enable more effective enforcement
 - with day-passes to ensure minimal port disruptions
- Adjusted concession fee to enable effective administration and market oversight
- CTP financing only to LMCs for new trucks

3. Allow pathway for small businesses to grow

- Business outreach program providing transition assistance to current drayage participants

Note: “Clean trucks” are those complying with 2007 emissions standards

Option II: “Enhanced model with market incentives”

	Lever	Rationale
1 Environmental Cargo Fee	Exemption amount (net fee) <ul style="list-style-type: none"> Privately funded: CD (\$0 to 17.50 TBD), LNG / alt. fuel / hybrid (\$0) CTP funded: CD (\$35), CD after financing paid off (\$0), LNG / alt. fuel, hybrid (\$0) Prior to Oct 1 (\$0) grandfathered for any clean truck 	<ul style="list-style-type: none"> Cleaner ahead of ban, green growth Encourage private investment
	Exemption timing <ul style="list-style-type: none"> Flat across time with rights to adjust in future as needed 	
4 Concession	Concession recipients <ul style="list-style-type: none"> LMCs only 	<ul style="list-style-type: none"> Create orderly market Cover admin costs Ensure sufficient supply Improve security Improve safety Improve worker condition Reduce negative impacts on local community
	Concession criteria <ul style="list-style-type: none"> Parking requirement (inspected off street) Strict revocation if trucks not properly maintained Identifiable place of doing business 	
	Price of a Concession <ul style="list-style-type: none"> ~\$2000-3000 TBD for concession, \$100 annually per truck Right to change price of concession in future 	
	Concession term <ul style="list-style-type: none"> 5 years standard May be revoked for any infractions 	
	Exceptions <ul style="list-style-type: none"> Day passes for trucks servicing port less than X visits per year 	
5 Truck financing program	Financing recipient <ul style="list-style-type: none"> LMCs only for new trucks LMCs or IOOs for truck buyback for scrap Business outreach program for transition assistance 	<ul style="list-style-type: none"> Cleaner trucks Reinforce orderly market Support upstanding small businesses Reinforce sustainable market
	Amount of CTP financing <ul style="list-style-type: none"> CTP Grant: ~80% for New Diesel, Up to 80% for LNG/Alt. Fuel/Hybrids/New technology Truck scrap program: starting with ~\$5000 per pre-89 truck, requires prior SoCal registration and history of SPB drayage No retrofit financing, unless technology meets 2007 standards 	
	Financing criteria <ul style="list-style-type: none"> Financial requirements set by commercial partner Dray frequency going forward for new truck of at least (#) visits/week 	

Note: Truck ban schedule and TWIC security requirements as per Option I
BCG Report 3-13-08 final.ppt

One specific element of Options II is provision of a Business Outreach Program for LMCs

Illustrative description of Business Outreach Program

Example benefits	Description
Educational resources	Business seminars to provide education on best practices under the new CTP program. Illustrative seminar examples: <ul style="list-style-type: none">• Compliance with new CTP regulations• Operational efficiency best practices• Managing finances / CTP funding• Human resources guidelines for employees Driver safety training courses and truck maintenance options
Financing [At Port's discretion]	Short term, low interest rate loans to cover educational seminars and business transition expenses
Criteria	Open to any LMC, with preference for financing given to those with a history of drayage work

Source: interviews with POLA staff
BCG Report 3-13-08 final.ppt

Option II evaluation: Environmental

Benefit/ risk	What we think will happen...	..and why
+	Conditions created to accelerate switch to greenest trucks ahead of ban schedule	Economics favor cleaner trucks: Full exemption on all privately purchased clean trucks and full exemption on all alternative fuel vehicles regardless of funding source
+	“Dirty” diesels rapidly removed from SPB region	Scrap program will provide good money and an exit strategy for IOOs facing ban/restriction; LMCs will be incentivized to scrap old trucks
+	Participants should continue to invest in truck improvements	Concession criteria will enable stringent and ongoing oversight; asset based model promotes investment in up-to-date technology
-	Risk that long term sustainable environmental and operational stability undermined	No employee requirement: risk that LMCs choose not to hire employees and under-capitalized IOOs remain significant factor in market

Option II evaluation: Port Operations

Benefit/ risk	What we think will happen...	..and why
+	Continual improvement in the efficiency of the port drayage market are likely with LMC consolidation and move to asset-based	Larger more well capitalized LMCs with employees able to invest in and push for efficiency improvements; LMCs have more skin in the game; efficiency efforts in consolidated market more likely to be implemented and rewarded
+	Orderly transition to asset based market with limited change to port operations and ability to absorb swings in demand	Flexibility with IOOs or employees servicing market and transition assistance through the implementation of business outreach program
+	Labor market incomes improve and mix shifts towards employees	Financial benefit for LMCs to buy clean trucks and hire employees as IOO rates increase
+	Migration to a mix of IOO and employee based trucking market	Asset owning LMCs will seek out employee drivers for their trucks
+	Migration of trucker incomes towards prevailing comparable levels according to mix of IOOs and employees	Prevailing wage required to attract additional IOO and employee drivers
-	Total diversion will be slightly greater than Option I – approximately 2% based on rational economic decisions resulting from drayage price increase	More consolidated market will result in drayage price increases especially due to labor changes
-	Risk that private players continue to fund and support marginal IOOs and/or create a “marginal contractor” labor market for truckers who sub-lease LMC controlled trucks	No explicit employee requirement allows for opportunities to ‘game the system’
-	Risk that LMCs do not pass on gains to IOOs or employees	No control over contractual dynamics between LMCs and IOOs

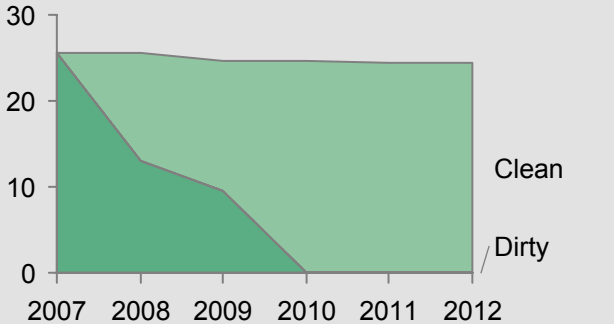
Option II evaluation: Safety and security

Benefit/ risk	What we think will happen...	..and why
+	Improved port security	Stricter concession criteria with improved oversight; reciprocal obligations with port grant concessions to only those LMCs accountable for safety/security
+	Improved driver and community safety	Improved maintenance and driver training
-	Risk that the mix of employees and IOOs complicates the enforcement of safety and security requirements	Potential difficulty in maintaining oversight and transparency due to different mechanisms for dealing with employees and IOOs

Option II: Analytical evaluation

Environmental

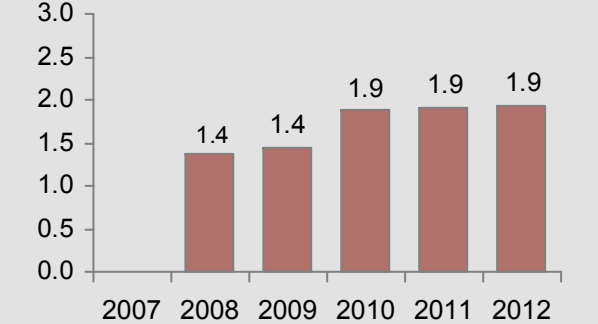
Total SPB drayage trucking time (M hrs)



- Clean trucks enter system more quickly than Option I due to optimized exemptions

Operations

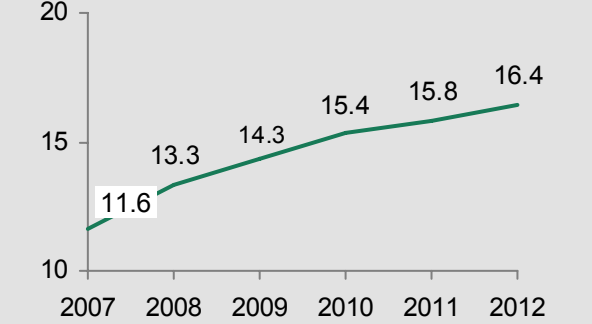
Cumulative Diversion (% SBP demand)



- Cumulative diversion reaches ~2.0% due to higher wage rates and employee costs (vs. ~1.2% in Option I)

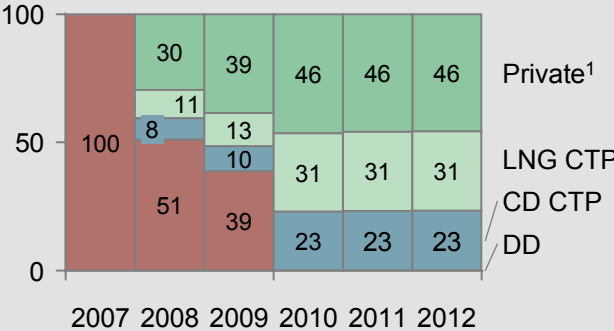
Drayage market

Avg. drayage income (\$/hr)



- Rate increases to ~\$16-17/hr mix of IOOs and employees hired by asset based LMC (vs ~\$12.3/hr in Option I)

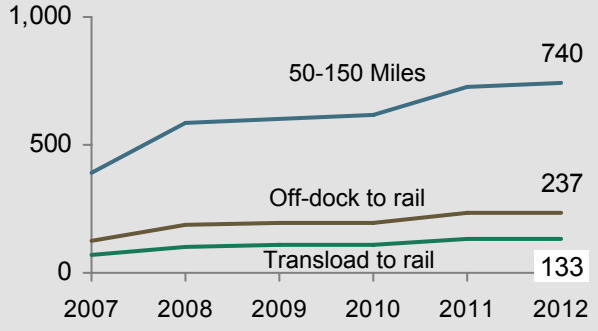
Truck type utilization (equivalents, %)



- Optimized exemptions encourage private trucks to enter market earlier
- Grandfather clause for CDs pre-Oct 1st

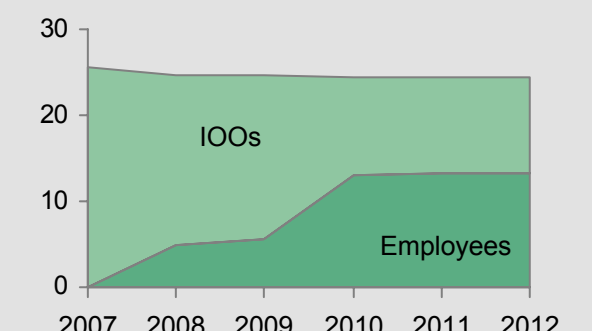
1. Private includes blend of clean diesel and alt fuel, mix will depend not only on CTP incentives (e.g. ECF exemptions) but also factors not modeled such as private funding, tax treatment etc
Source: BCG drayage market supply and demand economics model, March 2008

Avg. drayage costs per container (\$)



- Spike in first year due to ECF and TWIC
- Continued increase as employees added to system in out years

Driver time required (M hrs)



- ~50% of drayage performed by employees after 5 years

With move to more of an asset based model we will expect improvements in operational efficiency: examples

Efficiency improvement	Action required	Result
Increase matching of inbound and outbound loads	LMC investment in GPS systems for trucks and routing or scheduling software	Reduction in miles driven without a load (bobtail)
Decreased time spent within the port terminal	Terminal operator application of appointment systems or investment in terminal redesign	Less wait times at the port and therefore shorter turn times
Improve truck operating efficiency	LMC investment in newer trucks, wholesale fuel purchasing, and high maintenance standards	Lower fuel costs, as well as less time lost due to truck repairs
Higher daily truck utilization	Slip-seating management by LMCs or IOOs voluntarily allowing others to drive their trucks	Near 24 hour driving time of each truck, increasing usage capacity
Increase drayage during off-peak time periods	Direction by LMCs to pick-up and drop-off containers during non-traditional hours	Less traffic leading to overall mile per hour increase during driving time
Increased truck speeds, reduced wait times, and improved matching combined	Generous investment and commitment in all categories above	No net change in overall drayage rates as efficiency improvements mitigate price increases

Source: Haveman and Thornberg (Beacon Economics), Clean Trucks Program, February 2008

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However, Option II carries some specific risks

Risk of emergence of some new form of labor market which continues to be unattractive to the long term supply of truckers e.g.

- “Taxi cab” like contract employees
- LMC truck lease to IOOs
- “IOO cooperatives” in which IOOs have little stake in incomes earned

Risk that BCOs directly perpetuate existing market by stepping in to fund IOO trucks

- BCOs have signaled willingness to encourage these sorts of options
 - example: Coalition for Responsible Transportation

Risk that Ports’ ability to ensure safety and security is compromised by continued existence of a complex market structure with large numbers of both employees and IOOs

Risk that long term sustainable environmental and operational stability undermined if under-capitalized IOOs remain a significant factor in market

Example: BCOs willing to make investments in drayage

Coalition for Responsible Transportation supports BCO investment in cleaner trucks

Mission statement

- “To allow private sector companies to address goods movement-related environmental issues by implementing innovative solutions to alleviate diesel-related emissions and promoting sustainable business practices in communities surrounding our nation’s ports.”¹
- “C.R.T. encourages and invites shippers, trucking companies and ocean carriers to join the Coalition so we can collectively provide cleaner, safer and more reliable drayage service at the Ports of Los Angeles and Long Beach.”¹

Action plan details

- “1. Trucking Company would arrange for all Clean Truck purchases or leases.
- 2. Trucking Company would provide the independent owner operator with a loan for the down payment or facilitate direct financing from third parties, as provided for in "Business Model" above, in exchange for a service commitment from the independent owner operator.
- 3. A Market Adjustment Fee would be charged to all BCO’s.
- 4. Fees would be billed and collected by the Trucking Company and then disbursed to the truck manufacturers or leasing companies and independent owner operators.
- 5. Trucking Companies would be subject to Clean Vehicle audits by the Ports or any other government agency. Fleets could be converted within 12 months.
- 6. Owner-Operator status could still be preserved and companies would still be subject to fines or restricted from Port access for failure to comply.”²

Key players

- “TTSI (Total Transportation Services Inc.) will help the owner-operator truckers lease-to-buy or outright purchase low-emission vehicles through financial assistance and/or by obtaining public grant funds.”³
- “TTSI will purchase LNG (liquefied natural gas) vehicles and new 2007 model diesel trucks, or retrofit 2000 model or newer trucks with cleaner engines. All of these vehicles will meet the ports' rigid standards contained in the Clean Air Action Plan.”³
- “NYK Line, Target, and other members will be prepared to contribute to higher adjusted market freight rates in order to compensate the owner operators for the added costs.”¹

1. CRT website 2. CRT Inaugural Press Conference, Aug 3, 2007 3. Peter Keller (NYK Line North America), interview with Journal of Commerce, Aug 27, 2007

... Option III builds on Option II and creates the requirement for an *employee based* drayage market

Objectives of the employee commitment:

- Ensure continued supply of drivers through creation of positions offering attractive incomes and benefits, while
- Maintaining a reliable and responsive supply of trucks and truckers to accommodate peaks and troughs in demand, and
- Ensuring LMCs held accountable for safety and security

Benefits of an asset and employee based drayage system

- Creates *reciprocal obligations*
 - Port provides concession and demands performance in return
 - LMC invests in drayage capacity (trucks and employees) and obtains benefit from income generated through concession
- Creates *aligned incentives* – e.g. both parties benefit from improvements in operational efficiency through better utilization of assets/trucks and employees
- Strongest basis for *ensuring highest levels of accountability*
 - Environmental e.g. truck maintenance to keep up green performance
 - Safety and security e.g. employer accountable for employee

A range of different types of employee commitments were considered

Employee commitment option	Key considerations
A. 100 % of LMC utilized drivers serving port	<ul style="list-style-type: none">• How to phase in? (e.g. 20% for 5 years)• How to meet fluctuations in demand? (e.g. peak exemptions, flexible workers, overtime etc)
B. Fixed proportion (e.g. 80%) of LMC utilized drivers serving port	<ul style="list-style-type: none">• What is the appropriate level to set to accommodate flexibility?• How to phase in? (e.g. 20% for 4 years)• How to measure and monitor?
C. Set ratio of LMC controlled trucks: employees serving port	<ul style="list-style-type: none">• What is the appropriate ratio? (e.g. 1:1 or 1:2)• Will this slow move to cleaner trucks?
D. Link CTP financed trucks to employees	<ul style="list-style-type: none">• Will this slow move to cleaner trucks?• What will happen to drivers for privately funded trucks?• Why would LMCs take advantage of such a program with restrictions?

Option C – Why link employees to LMC controlled trucks?

Idea anchored in observation of structure of national trucking fleets

Trucking firm	# IOOs	# Employees	# Company Trucks	% IOOs	Employee to truck ratio	Union status
YRC Worldwide (formerly Yellow)	0	66,000	27,786	0%	2.4	Yes, Teamsters
JB Hunt Transportation	1,107	17,150	10,961	6%	1.6	Non-union
Swift Transportation	2,950	21,900	14,977	13%	1.5	Non-union
Werner Enterprises	820	14,326	8,180	6%	1.8	Non-union
Old Dominion Freight Line	n/a	10,762	4,643	NA	2.3	Non-union

Source: Company 10-Ks, Transport Topics Top 100 For-Hire Carriers of 2007

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Pros and cons of different forms of employee commitment

	A 100% of drivers serving the port	B ~80% of drivers serving the port	C Set ratio of trucks to employees	D Link CTP funded trucks to employees
+	<ul style="list-style-type: none"> Guarantees employee commitment Monitoring employee status less complex Encourages employers to maximize employee flexibility 	<ul style="list-style-type: none"> High level of employee commitment Some supply flexibility for peak demand periods Matches patterns of employment in other trucking markets 	<ul style="list-style-type: none"> Clear logic of one truck = 1+ employee Matches employment and truck ownership pattern in other trucking markets Allows for flexibility via IOOs 	<ul style="list-style-type: none"> Enables tight control over commitment through financial means
-	<ul style="list-style-type: none"> Requires clearly defined alternatives to scale drivers up for peak demand e.g. mechanism to relax commitment under peak load 	<ul style="list-style-type: none"> Complexity in measuring compliance No simple way to set the cut off point – for firms preferring to operate below this the cut off restricts flexibility 	<ul style="list-style-type: none"> Complex to administer: requires measurement of both truck and employee status Provides incentive not to upgrade/purchase trucks in advance of ban therefore undermines environmental goals 	<ul style="list-style-type: none"> Companies able to privately fund can avoid employee requirement LMCs may not take advantage of funding with this restriction May slow move to cleaner trucks
	✓	✗	?	✗

100% commitment is simplest and most direct target, phase in of commitment over time gives opportunity to measure and fine tune the above mechanisms

Option III: “Enhanced model with market incentives and an employee commitment”

Component	Lever	Rationale
1 Environmental Cargo Fee	Exemption amount (net fee) Privately funded: CD (\$17.50 or less), LNG / alt. fuel / hybrid (\$0) CTP funded: CD (\$35), CD after financing paid off (\$0), LNG / alt. fuel, hybrid (\$0) <ul style="list-style-type: none"> • Prior to Oct 1 (\$0) grandfathered for any clean trucks 	<ul style="list-style-type: none"> • Cleaner ahead of ban, green growth • Encourage private investment
	Exemption timing <ul style="list-style-type: none"> • Flat across time with rights to adjust in future as needed 	
4 Concession	Concession recipients <ul style="list-style-type: none"> • LMCs only 	<ul style="list-style-type: none"> • Create orderly market • Cover admin costs • Ensure sufficient supply • Improve security • Improve safety • Improve worker condition • Reduce negative impacts on local community
	Concession criteria <ul style="list-style-type: none"> • Parking requirement (inspected off street) and identifiable place of bus. • Strict revocation if trucks not properly maintained • 100% employee commitment (phased in over 5 years) – priority to be given to existing truckers when creating new employees • Certification of employees having completed mandated safety training 	
	Price of a concession <ul style="list-style-type: none"> • ~\$2000-3000 TBD for concession, \$100 per truck, • Right to change price of concession in future, or offer seasonal 	
	Concession term <ul style="list-style-type: none"> • 5 years standard • May be revoked for any infractions or lack of performance 	
	Exceptions <ul style="list-style-type: none"> • Day passes for trucks servicing port less than X visits per year • Option to relax employee commitment at times of peak load 	
5 Truck financing program	Financing recipient <ul style="list-style-type: none"> • LMCs only for new trucks • LMCs or IOOs for truck scrap • Business outreach program for transition assistance 	<ul style="list-style-type: none"> • Cleaner trucks • Reinforce orderly market • Support upstanding small businesses • Reinforce sustainable market
	Amount of CTP financing <ul style="list-style-type: none"> • CTP Grant: ~80% for New Diesel, Up to 80% for LNG/Alt. Fuel/Hybrids/New technology • Truck scrap program: starting with ~\$5000 per pre-89 truck, requires prior SoCal registration and history of SPB drayage • No retrofit financing, unless technology meets 2007 standards 	
	Financing criteria <ul style="list-style-type: none"> • Financial requirements set by commercial partner • Dray frequency going forward for new truck of at least (#) visits/week 	

Option III evaluation: Environmental

Benefit/ risk	What we think will happen...	..and why
+	Conditions created to accelerate switch to greenest trucks ahead of ban schedule	Economics favor cleaner trucks: Full exemption on all privately purchased clean trucks and full exemption on all alternative fuel vehicles regardless of funding source
+	“Dirty” diesels rapidly removed from SPB region	Scrap program will provide good money and an exit strategy for IOOs facing ban/restriction; LMCs will be incentivized to scrap old trucks
+	Participants should continue to invest in truck improvements	Concession criteria will enable stringent and ongoing oversight; asset based model promotes investment in up-to-date technology
+	Most likely to guarantee sustainable environmental and operational improvements	Asset based LMCs with 100% employees creates increased ability/incentives for investment and operational efficiencies.

Option III evaluation: Port operations

Benefit/ risk	What we think will happen...	..and why
+	Continual improvement in the efficiency of the port drayage market is likely with LMC consolidation and move to asset-based market	Larger more well capitalized LMCs with employees able to invest in and push for efficiency improvements; LMCs have more skin in the game; efficiency efforts in consolidated market more likely to be implemented and rewarded
+	Labor market incomes improve and mix shifts towards 100% employees	Financial benefit for LMCs to buy clean trucks and hire employees as IOO rates increase
+	Migration of trucker incomes towards prevailing comparable levels for employee truckers	Prevailing employee trucker wage required to attract employee drivers
-	Total diversion will be slightly greater than Option I and II – approximately 3% based on rational economic decisions resulting from drayage price increase	More consolidated market with 100% employees will result in highest drayage price increases (vs. Options I and II) especially due to labor changes
-	Risk of lack of orderly transition to asset based market with ability to absorb swings in demand	If there is a rapid exit of IOOs servicing market the ability to handle swings in demand may be threatened

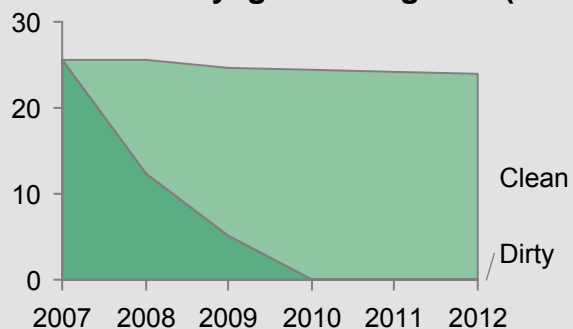
Option III evaluation: Safety and security

Benefit/ risk	What we think will happen...	..and why
+	Improved port security (better than options I and II)	Stricter concession criteria with 100% employee requirement will improve oversight; reciprocal obligations with port grant concessions to only those LMCs accountable for safety/security
+	Improved driver and community safety (better than options I and II)	Improved maintenance and driver training

Option III: Analytical evaluation

Environmental

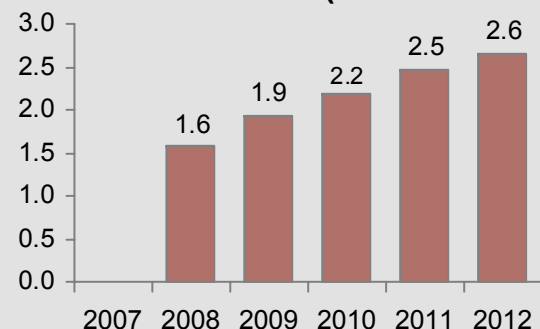
Total SPB drayage trucking time (M Hrs)



- Similar outcome to Option II
- Due to exemptions, LMCs choose clean trucks in line with commitment schedule

Operations

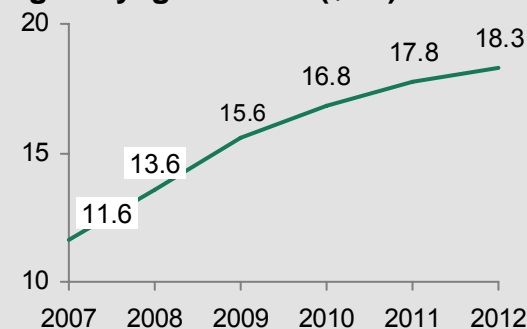
Cumulative Diversion (% SBP demand)



- Cumulative diversion reaches ~2.7% due to higher costs under commitment schedule (vs. ~2.0% in Option II)

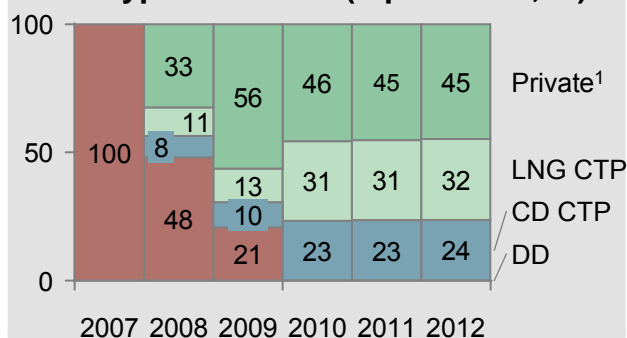
Drayage market

Avg. drayage Income (\$/hr)



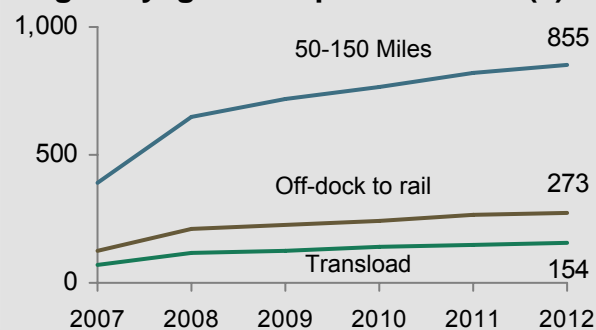
- Rate increases to ~\$18/hr due to 100% employee commitment (slightly higher than Option II)

Truck type utilization (equivalents, %)



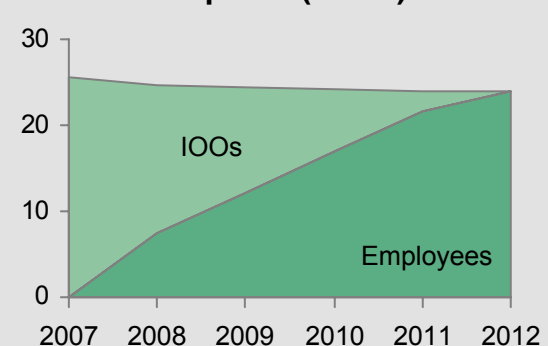
- Similar outcome to Option II

Avg. drayage costs per container (\$)



- Highest rates of all options based on 100% employee rate and associated costs

Driver time required (M hrs)



- % of employees increases according to commitment schedule

1. Private includes blend of clean diesel and alt fuel, mix will depend not only on CTP incentives (e.g. ECF exemptions) but also factors not modeled such as private funding, tax treatment etc
Source: BCG drayage market supply and demand economics model, March 2008

However, Option III also carries some specific risks

Risks of additional loss of trucking supply, e.g.:

- Drivers and trucks as IOOs leave the market as they do not wish to become employees
- Risk that trucking firms do not enter the market due to concerns over regulation/costs

Risks of lack of flexibility in supply to meet peak demands, e.g.:

- Failure to create appropriate pools of flexible workers to accommodate peaks and/or
- Employers hiring to minimum rather than peak without part-time employees

Risk of BCOs diverting discretionary cargo

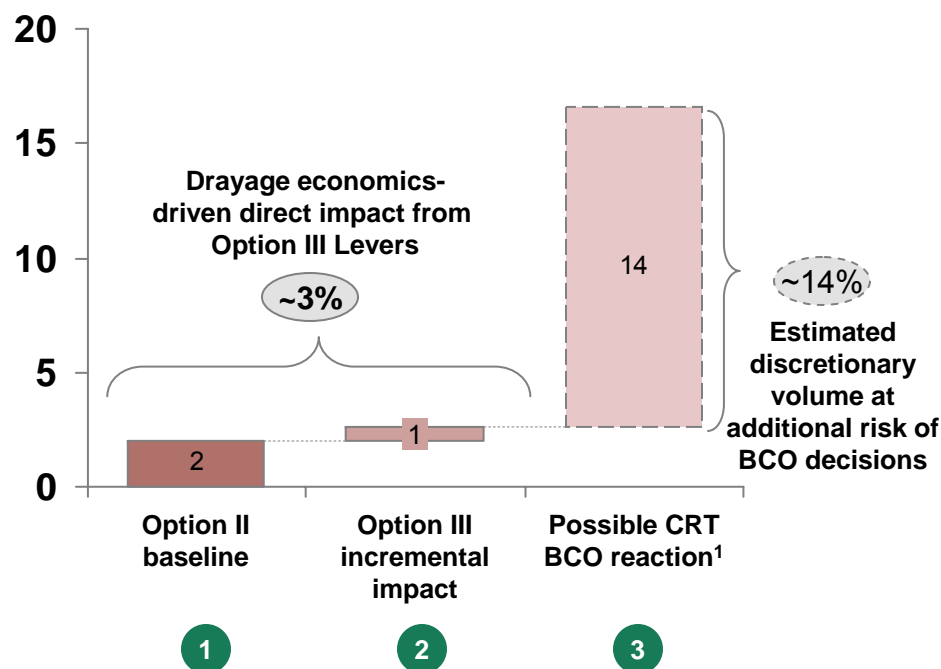
- Some BCOs state that the employee commitment makes their supply chain less reliable

Notwithstanding these risks, employee commitment provides best *guarantee* of long term market sustainability

Key risk in option III is of BCO diversion over and above that driven by drayage pricing alone

Employee commitment has wide range of potential impacts on diversion ...

Potential % SPB cargo diversion



... Primary risk is of BCO driven diversion not loss of current drivers

- Option II without employee commitment impacts price of drayage**
 - Price increases result in ~2% diversion
- Employee commitment in Option III may have additional impact on drayage pricing**
 - Incremental loss of up to ~40% existing truckers results in ~0.6% diversion as new workers drawn in at higher wages
- Employee commitment may also be considered a threat to BCOs**
 - Risk that CRT (coalition for Responsible Transportation) BCOs decide to divert discretionary cargo, estimated at ~14% of SPB total volume¹
 - Other BCOs may also divert discretionary cargo

Risk of diversion is exacerbated if POLA and POLB adopt different programs – as non discretionary also at risk

1. Coalition for Responsible Transportation participants estimated to comprise ~20% SPB container demand, of which ~70% is estimated to be discretionary
Source: Cargo Demand study, POLA interviews

Implications of a mixed model from POLA's perspective

Initial observations

	Short-medium term Years 1-5	Long term Years 5+
	From program start to 2012	From 2012 and beyond
Drivers	IOOs who value independence may leave for POLB. However, increasing wages in POLA will create incentive for IOOs to become employees and attract workers from outside current drayage labor pool	Higher driver wages and benefits in POLA due to the employee commitment and move to asset-based LMCs that own trucks ensure a reliable and scalable supply of drivers and trucks
LMCs	Smaller undercapitalized LMCs may exit POLA and focus their attention on POLB. Larger LMCs should be attracted due to market consolidation and exit of marginal players. Existence of mixed model may accelerate LMC rationalization	Presence of large, well capitalized LMC's enables better implementation of operational efficiencies and overall provides high reliability; Marginal LMCs continue to find it difficult to keep up with rising environmental, safety and security standards and over time withdraw from POLB also
BCOs and demand	As drayage prices increase, some price sensitive BCO's may switch to POLB; but those who value reliability and timeliness are likely to be attracted to POLA	BCO appreciate sustained cost improvements and reliability of supply in POLA and switch higher share of work from other ports
Scalability with Growth	Operational efficiencies start to take hold as well-capitalized LMCs can afford to spend money improving driver and truck utilization; As market consolidates POLA should have greater ability to work together with participants	POLA is able to move cargo at reasonable prices, due to implementation of operational efficiencies by TOs and large LMCs

Agenda

Comparison of options and conclusions

We considered the benefits and risks for each model in both the near and longer term

Option I Basic plan

Near term (1-5 years)

- Ban satisfies immediate environmental changes
- No change in port operations and minimal improvements in safety and security

Long term (5+ years)

- Fails to create a sustainable long term drayage market that will enable continued progress in improving environmental outcomes and enabling green growth

Option II Enhanced model with market incentives

Near term (1-5 years)

- Creates conditions to accelerate switch to greenest trucks
- Limited change in port operations
- Discourages marginal LMCs

Long term (5+ years)

- If LMCs hire employees will create conditions for sustainable green growth, but
- Risk that long term sustainable environmental and operational stability undermined if under-capitalized IOOs remain significant factor in market

Option III Enhanced model with market incentives and employee commitment

Near term (1-5 years)

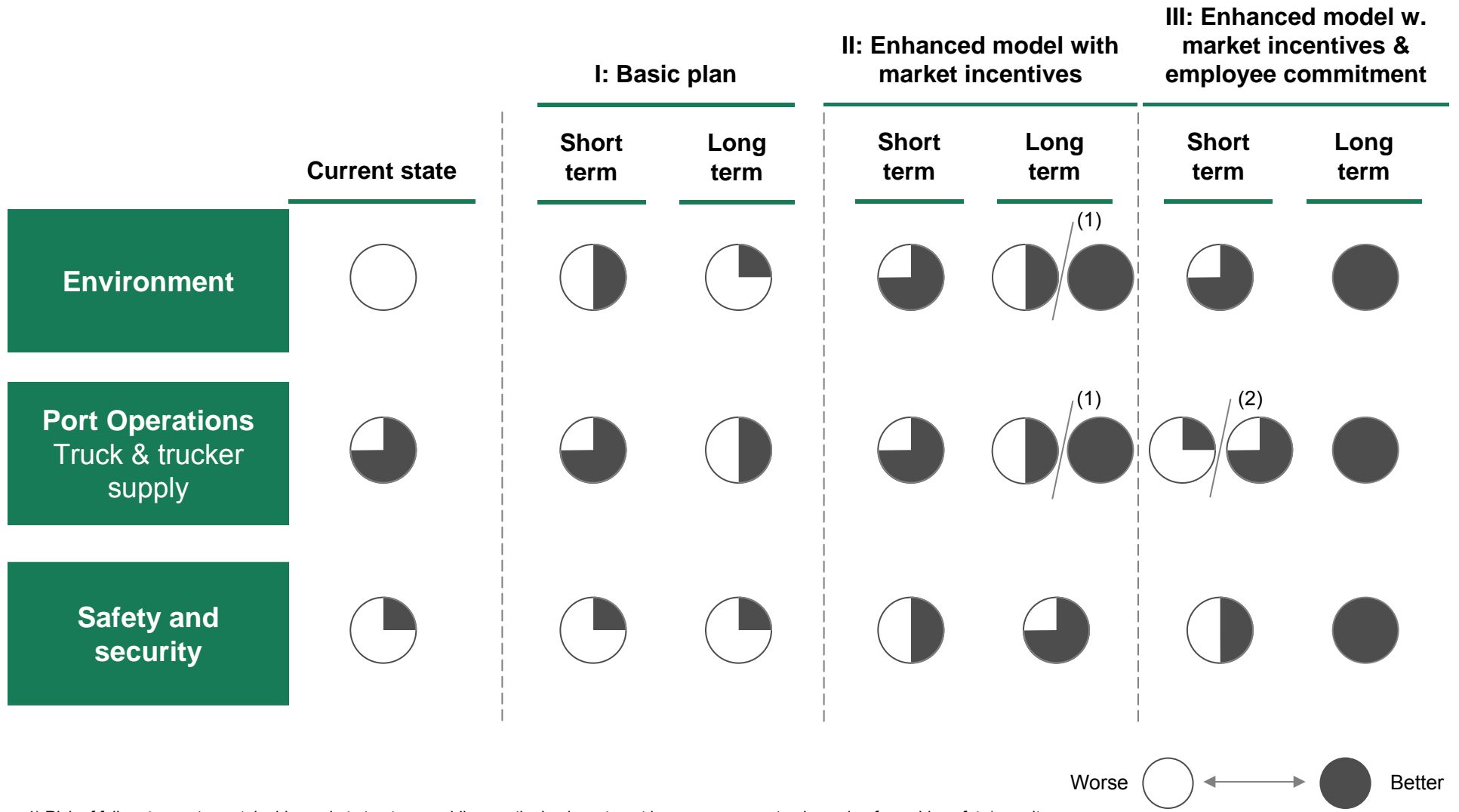
- Creates conditions to accelerate switch to greenest trucks
- Potential risk of diversion as BCOs face uncertainty of employee commitment

Long term (5+ years)

- Most likely to guarantee sustainable environmental and operational improvements
- Employee and asset based model enhances ability to improve safety and security

Benefits
Risks

Our overall conclusion: Option III provides the best path to long term sustainability, but with near term risks



1) Risk of failure to create sustainable market structure enabling continuing investment in newer greener trucks and enforceable safety/security

2) Risk of near term disruption caused by BCO diversion

Note: Short-term represents a 1-5 year time span and considers system condition and risks, while long-term represents 5+ years and is primarily based on sustainability

Total added costs of move to option III are justified given the benefits realized

Incremental costs of recommended option III over status quo are appx. \$1.1B per annum in terms of additional drayage costs

- Cumulative sum of all added drayage costs (ECF, labor rates, employee costs) assuming no change in mix beyond predicted diversion
- Compares to \$0.6B under Option I

Additional \$0.5-1.1B is less than externalities offset by changed drayage market

- Cost impact of externalities estimated at \$0.5-1.7B per annum
 - Externalities include not only annualized health costs but also costs of inefficiency and lost benefits for truckers and LMCs, and community impact

Option III delivers positive cost:benefit ratio from year 3 onwards

- Estimate of cumulative added costs of option III in years 1-5 is \$4.6B
- Cumulative benefits over same five year period are in the range of \$1.8-6.7B¹

1. Benefits phased in in proportion to changes in numbers of employees, income levels, and proportion of clean to dirty trucks
Sources: Multi-County GMAP Final Technical Memorandum 3, Tioga Group SPB Cargo Forecast, Starcrest Consulting Methodology for Est HDV Truck Activity at POLA/POLB, John Husing SPB CAAP Economic Analysis Proposed CTP, AAA/Cambridge Systematics: Crashed vs. Congestion: What's the Cost to Society, Texas Transportation Institute 2007 Annual Urban Mobility Report, Parentela and Cheema GIS-Based Risk Analysis for Commercial Goods Transport in Southern California; studies on costs of uninsured by studies by the State of Maryland, State of Texas, Kaiser, and the Institute of Medicine; BCG analysis

Conclusions

1. Option I will not create a sustainable long term drayage market that will deliver reliable supply, ensure continued progress in improving environmental outcomes, and enable green growth (e.g. through creating incentives for operational efficiency)
2. Both Options II and III have the potential to create a drayage market that meets the CAAP and CTP objectives (environmental, operational and safety/security) not only in the near term (the terms of the ban) but also in the long term (creates a sustainable drayage market)
3. Option II carries the risk that long term sustainability is undermined if market participants or third parties find ways to hold employee incomes below prevailing levels needed to ensure a reliable supply of truckers (e.g. by financing existing IOOs)
4. Option III directly addresses this risk and offers the best guarantee of long term sustainability, but at the cost of introducing a new element of operational uncertainty
5. One potential outcome could be that the ports of Long Beach and Los Angeles adopt different programs. The Port of Long Beach has adopted a program like Option I. Were the Port of Los Angeles to adopt either of Options II or III there is risk that volume of containers and supply of truckers could divert from Los Angeles to Long Beach.
6. In conclusion we recommend that decision makers seek a unified approach to the San Pedro Bay Clean Truck Program. Decision makers' preference between Options II and III will hinge on the relative weight they give to risk of LMC/BCO actions versus risk of market participants exploiting loopholes to sustain a lower wage, marginal economics based SPB drayage market and failure to achieve sustainable advantages in line with CAAP goals