



Port of Los Angeles Clean Truck Program

Presentation to the Los Angeles Board of Harbor Commissioners

March 6th, 2008

THE BOSTON CONSULTING GROUP

Context and objectives for this meeting

This document was presented by members of The Boston Consulting Group, Inc., to the Los Angeles Board of Harbor Commissioners on March 6, 2008 in Los Angeles, CA

During the presentation, the slides served as the focus for the discussion; they are incomplete without the accompanying oral commentary. This document will be most meaningful, therefore, to those who attended the meeting

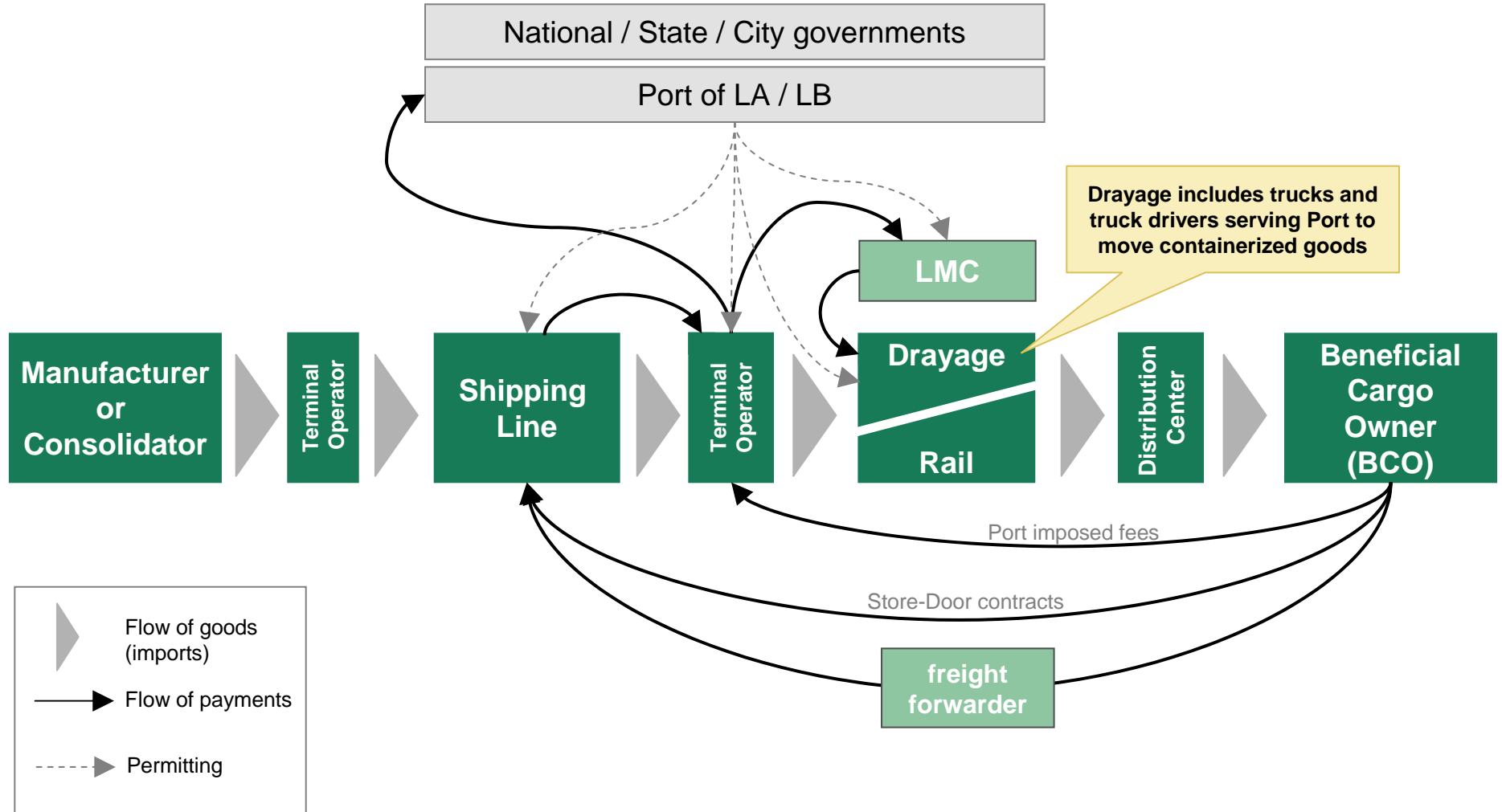
BCG was retained by the Executive Director of the Harbor Department to conduct an analysis of and create a business case for the Clean Truck Program (CTP). This presentation summarizes the outcome of BCGs analysis. This presentation is an extract from a longer document containing all of BCGs findings and analysis.

The objectives of this meeting is to provide the Board of Harbor Commissioners with an opportunity to review the draft findings from the BCG analysis and

- Understand the approach used to evaluate the CTP
- Review the CTP options considered

Truck drayage is a key element of the complex port goods movement system

Example: Import system



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 4. Interview with Tom Brightbill, CGR Management Consultants 5. Husing report and Interview with Bob Curry

Current drayage market creates externalized costs

Cost bearer

**Truckers
and LMCs**

**Public
health¹**

**City and
community**

Externalized cost examples

- Overall burden of operational inefficiency e.g.
 - truck under-utilization from port, freeway congestion
 - port congestion
- Potential lack of benefits

- Premature death
- Hospital admissions
- Respiratory illness and acute symptoms
- Workday and school-day loss
- Restricted activity

- Enforcement and other administrative costs
- Road maintenance
- Vehicle and driving safety
- Environmental damage
- Residential neighborhood impacts from truck parking and ingress/egress

1. Husing's SPB CAAP Economic Analysis report states cost estimated at \$1.7-10.1 billion with a median of \$5.9 billion (analysis by CARB)

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

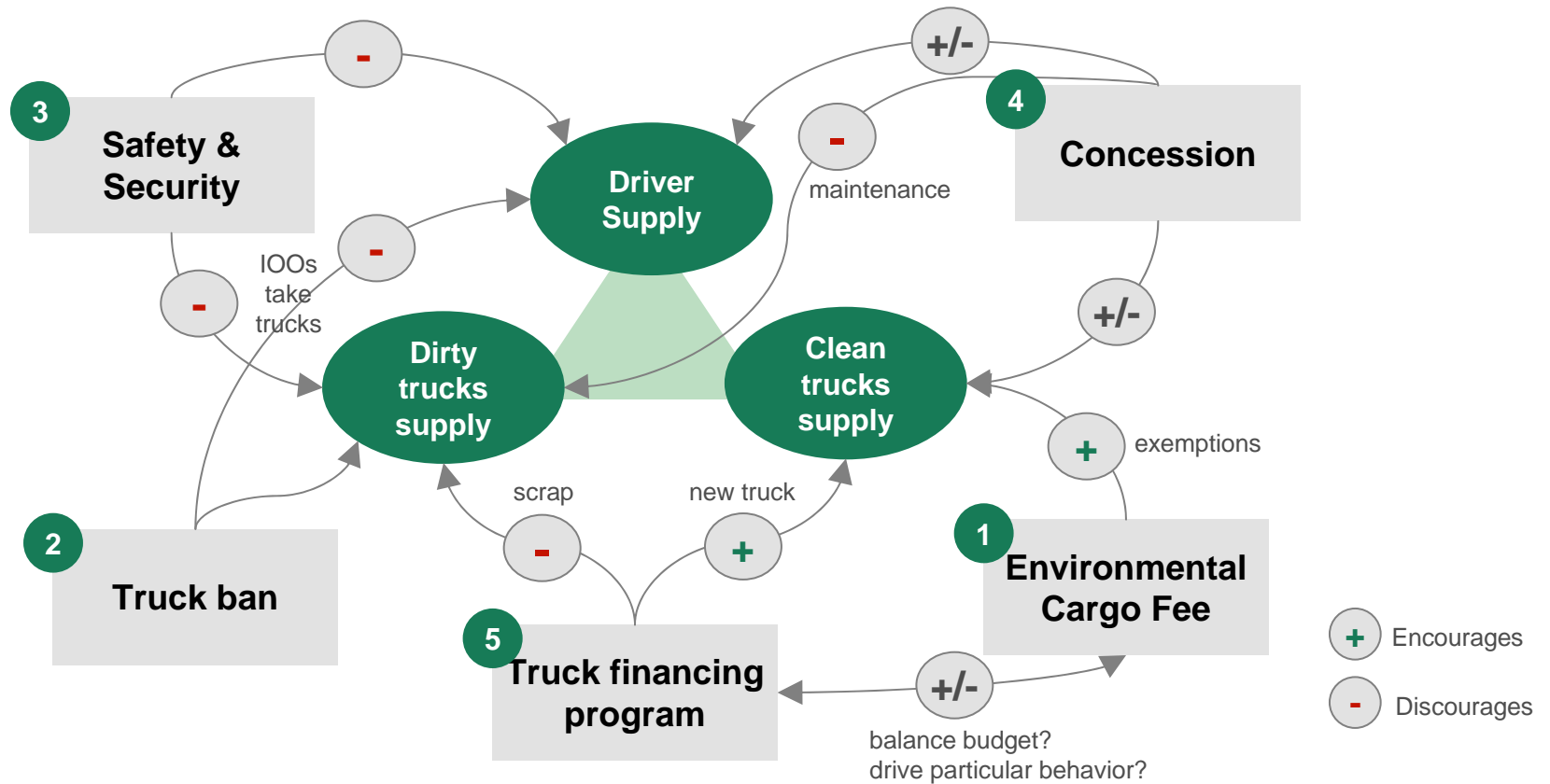
Safety and security

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

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

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

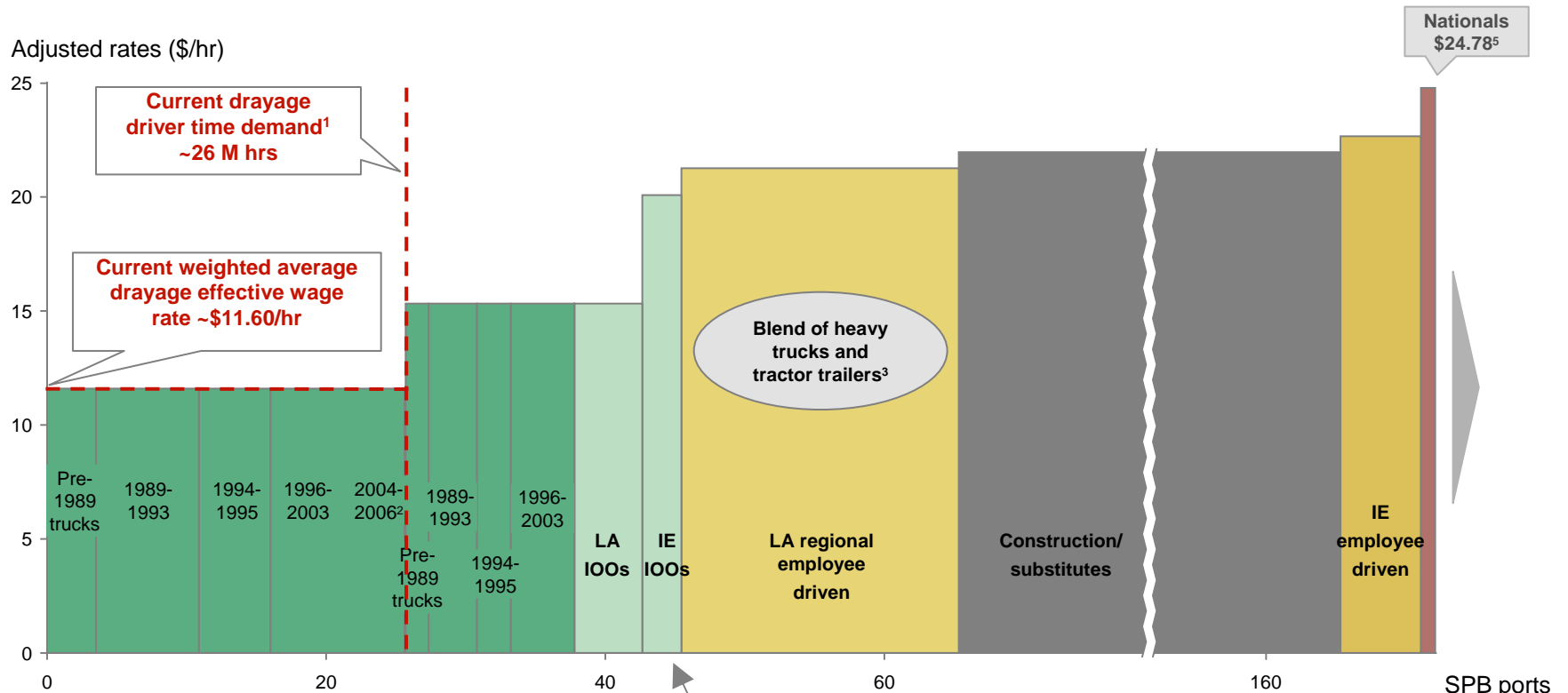


While drayage is a small part (usually <10%) of total shipping costs, increases in drayage costs can cause diversion, especially for the 68% of container moves that are discretionary (i.e. for outside So Ca)

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

... And the market for trucks and drivers

Example: Trucker “Supply stack” shows potential drivers and their required labor rates



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 (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

We evaluated three options for the CTP

Approach to achieve CTP objectives	I: Basic plan	II: Enhanced model with market incentives	III: Enhanced model with market incentives and employee commitment
1	Environmental Cargo Fee	Levers designed to minimize disruptions to drayage market \$35 / TEU, exemptions based on truck technology, funding source, and timing of purchase	Actively incent cleaner technology \$35/TEU, optimized exemptions to encourage cleaner technology and private funding
2	Truck ban	Progressive truck ban as outlined	
3	Safety and security	TWIC criteria as mandated by TSA	PLUS: added control, training and compliance among employees (via concession)
4	Concession	Basic operational criteria allowing LMCs to use employee and IOO drivers	More stringent operational criteria to help maintain oversight (without employee commitment) PLUS: explicit commitment for drivers to become employees over a set period of time
5	Truck financing program	Subsidies to IOOs and LMCs to fund upgrade of banned trucks (scrap required)	Subsidies given to authorized concessions only (scrap required) PLUS: dirty truck buyback program for IOOs and LMCs

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

... Option III goes further and creates the requirement for an *employee based drayage market*

Objectives of the employee commitment:

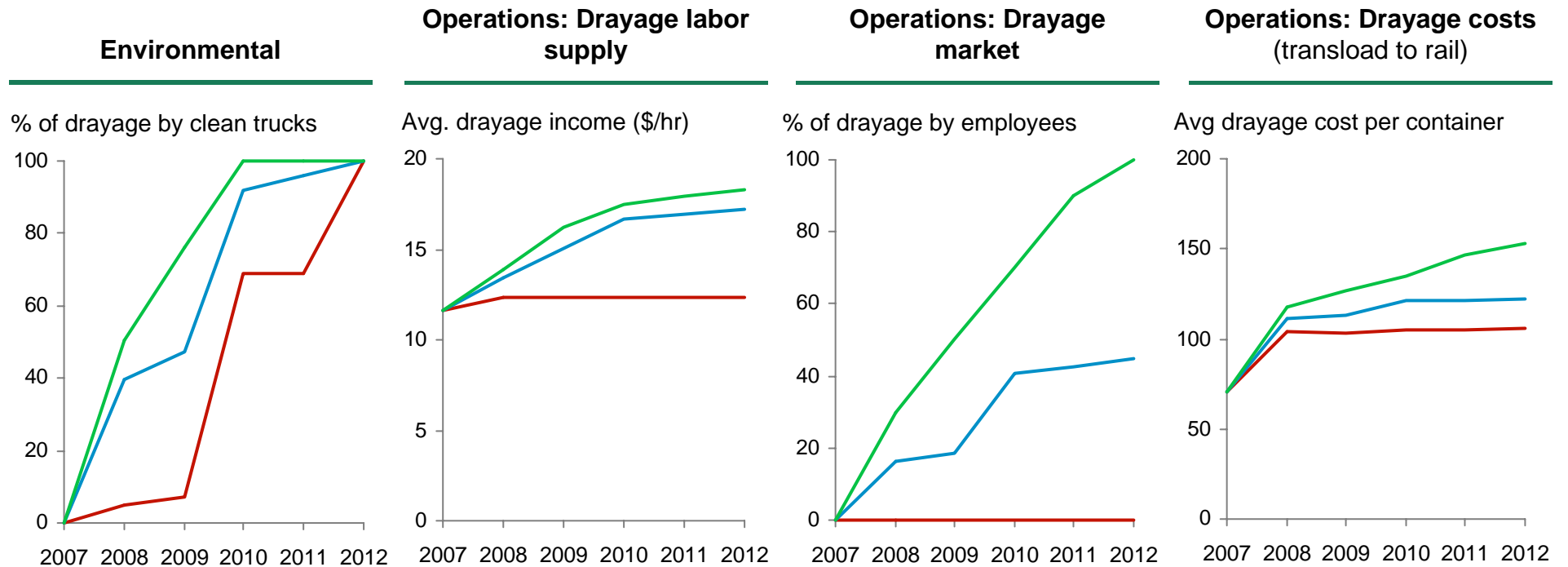
- Ensure continued supply of drivers through creation of positions offering attractive incomes and benefits, while
- Maintaining a reliable and responsive supply of trucks and truckers to accommodate peaks and troughs in demand, and
- Ensuring LMCs held accountable for safety and security

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

We built an analytical model to compare the three options

Sample comparative output

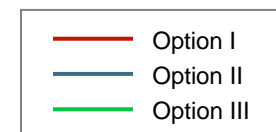


- Clean trucks enter system more quickly under Options II and III due to optimized exemptions and financing

- Near term rise from TWIC under option I. Drayage incomes rise under option II if marginal IOOs cannot access truck financing
- Under options II and III supply/demand brings in higher wage demanding substitute labor in out years

- Expect some shift to employee base under option II assuming no marginal IOOs
- Shift to employees under option III phased in over time

- Increase in costs in 2008 driven by ECF and TWIC impact on labor supply
- Shift to employee adds costs to drayage



Source: BCG drayage market dynamics model

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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)

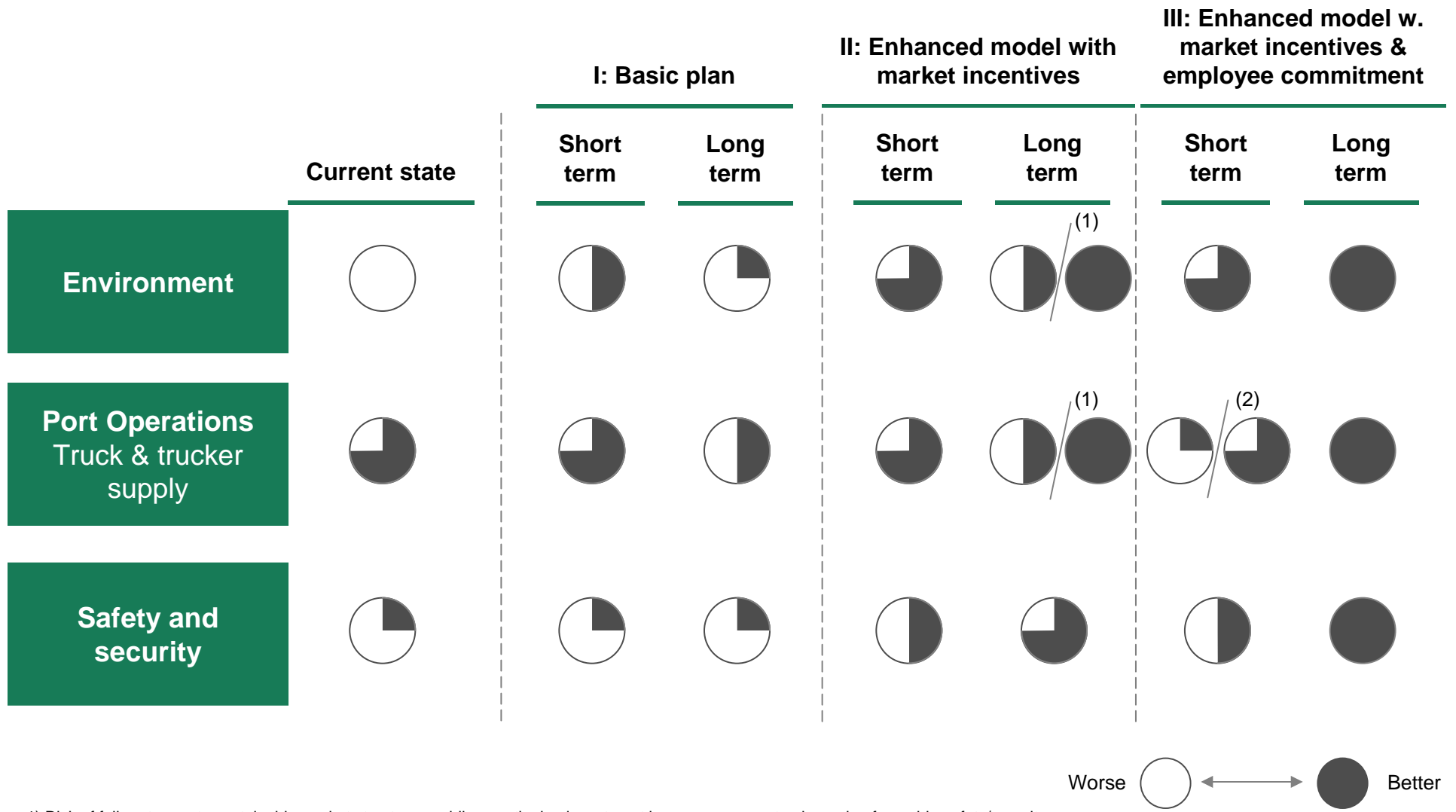
- Creates conditions to accelerate switch to greenest trucks
- Potential risk of diversion as BCOs face uncertainty of employee commitment

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

Conclusion

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

Agenda

Appendix: Description of the three options

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 II: “Enhanced model with market incentives”

	Lever	Rationale
1 Environmental Cargo Fee	Exemption amount (net fee)	<ul style="list-style-type: none"> Cleaner ahead of ban, green growth Encourage private investment
	Exemption timing	
4 Concession	Concession recipients	<ul style="list-style-type: none"> Create orderly market Set minimum bar Ensure sufficient supply Improve security Improve safety Improve worker condition Reduce negative impacts on local community
	Concession criteria	
	Price of a Concession	
	Concession term	
	Exceptions	
5 Truck financing program	Financing recipient	<ul style="list-style-type: none"> Cleaner trucks Reinforce orderly market Support upstanding small businesses Reinforce sustainable market
	Amount of CTP financing	
	Financing criteria	

Note: Truck ban schedule and TWIC security requirements as per Option I
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Option III: “Enhanced model with market incentives and an employee commitment”

Component	Lever	Rationale
1 Environmental Cargo Fee	Exemption amount (net fee)	<ul style="list-style-type: none"> Cleaner ahead of ban, green growth Encourage private investment
	Exemption timing	
4 Concession	Concession recipients	<ul style="list-style-type: none"> Create orderly market Set minimum bar Ensure sufficient supply Improve security Improve safety Improve worker condition Reduce negative impacts on local community
	Concession criteria	
	Price of a concession	
	Concession term	
	Exceptions	
5 Truck financing program	Financing recipient	<ul style="list-style-type: none"> Cleaner trucks Reinforce orderly market Support upstanding small businesses Reinforce sustainable market
	Amount of CTP financing	
	Financing criteria	

We used information from many previous studies

Sources of secondary information used by BCG

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