

Potential Revisions to ARB's Ocean-Going Vessel Emissions Inventory



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Why Update the Inventory?

- ◆ Upcoming regulations
 - Cold Ironing (Dec-07)
 - Main Engine (Dec-07)
 - Vessel Speed Reduction
- ◆ Align with recent port inventories
- ◆ Revise activity data
 - 2006 Base Year
 - Wharfinger/Anchorage Data
- ◆ Revise methodology
- ◆ Revisit growth assumptions and methods
- ◆ Status – ***DRAFT RESULTS – subject to change***

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Alignment with Port Inventories

- ◆ Consistency in inventories is important
 - No two inventories will be identical
- ◆ Revisions to generate greater consistency:
 - Consistent activity
 - Consistent methodology
 - Integrate Ship specific data

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Revise Activity Data

- ◆ State Lands Commission: default activity
- ◆ Wharfinger data
 - Reconciled with State Lands
 - Provides vessel specific hotelling times by berth
- ◆ Marine Exchange
 - Anchorage
 - Vessel Speeds in LA/LB
- ◆ Emissions decrease for 2006
 - Growth less than predicted

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Revised Methodology

- ◆ Auxiliary Engine Load Factor
- ◆ More vessel types consistent with Starcrest
- ◆ Ship-specific emissions calculations
- ◆ Update VSR compliance
- ◆ Boiler fuel use rates/emission factors
 - Significant PM10 emissions
- ◆ Greenhouse gases
- ◆ Incorporation of MARPOL Annex VI, Aux. Engine Rule in forecasts

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Auxiliary Engine Load Factor

- ◆ Container ships
 - Number of reefers
 - Port
- ◆ Impact on all 3 modes
- ◆ Emissions increase:
 - ~ 4.4 tpd NOx
 - ~ 0.4 tpd PM10

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Ship Specific Data

- ◆ Lloyds Fairplay PC Register
 - Ship Type
 - Cruise Speed
 - Main Engine Power/Speed
 - Reefer Plugs
- ◆ Auxiliary Engine Power
 - Starcrest Appendices
 - Environ – Port of Oakland
- ◆ 2007 OGV Survey Results

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Revise Growth

- ◆ Current rates pretty good
 - SECA/RTI
 - Are updating with additional years
- ◆ Potential for revising auxiliary engine growth
- ◆ Potential for revising container ship growth by vessel size

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Results - 2006 Base Year

- ◆ Auxiliary engines – hotelling and anchorage
- ◆ Does not include revised aux. load factors

Region	NOx	PM10
Bay Area	4.6	0.4
Humboldt	0.0	0.0
San Diego	1.0	0.1
South Coast	15.1	1.2
Ventura	0.5	0.0
Grand Total	21.2	1.8

Draft Results – Subject to Change

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Results - Comparison

- ◆ Auxiliary engines – hotelling and anchorage
- ◆ Does not include revised aux. load factors

Inventory	NOx	PM10
Revised	21.2	1.8
SIP v1.06*	29.2	2.5

* 2004 base year grown to 2006

Draft Results – Subject to Change

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Next Steps

- ◆ Schedule – inventory finalized for regs in next few weeks
- ◆ Inventory is still being evaluated
 - QA is on-going
 - Several technical changes still under review
 - Auxiliary engine load factors
 - Boiler emission factors
 - Growth
- ◆ Refine activity estimates
 - Integrate anchorage data
- ◆ District/Port/Stakeholder Outreach

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For More Information

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