

Proposed Amendments to Vapor Recovery Regulations

Aboveground Storage Tanks (AST) and
Enhanced Conventional (ECO) Nozzles

Sacramento, CA
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California Environmental Protection Agency

 **Air Resources Board**

Presentation Outline

Section 1: Vapor Recovery Program Background

Section 2: Aboveground Storage Tank Proposal

Section 3: Enhanced Conventional Nozzle Proposal

Section 4: Additional Changes to EVR Certification
Procedures

Section 5: Conclusions and Recommendation

California's Vapor Recovery Program



Bulk Plants / Terminals



Cargo Tanks

Gas Stations



Dispensing to Vehicles



Why Are Controls Needed?

- Meet regional State Implementation Plan goals for ground level ozone
 - Particularly important in South Coast AQMD
- Reduce exposure to toxics for consumers and local communities
 - Benzene is the airborne toxic of greatest concern in gasoline
- Regulations adopted in 1975, updated periodically

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AST EVR Rulemaking

- Background -

- ARB approved Enhanced Vapor Recovery (EVR) for AST in 2007
- Approximately 9,000 AST statewide
- 4,000 AST permitted by districts
 - Primarily corporate and government fleet fueling
 - Some retail use in rural areas
- Typically ~1% of the throughput of underground tank facilities



AST EVR Controls

Phase I

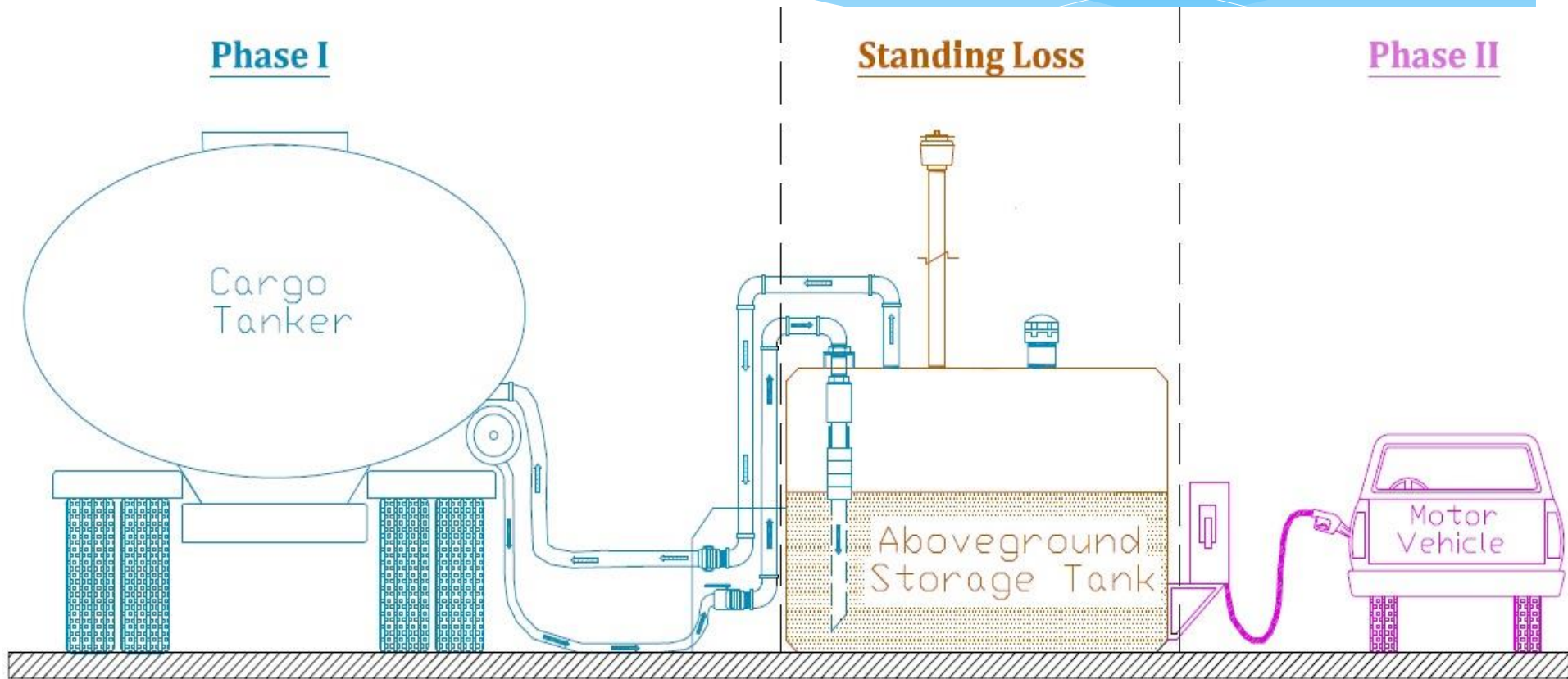
Cargo
Tanker

Standing Loss

Aboveground
Storage Tank

Phase II

Motor
Vehicle



AST Implementation

EVR Module	New Installations	Existing Installations	Expected Statewide Reductions
Standing Loss Control (SLC)	4/1/09	4/1/13	1.77 tons/day
Phase I	7/1/10	7/1/14	0.11 tons/day
Phase II	3/13/15	3/13/19	0.10 tons/day

2013 Review of AST EVR Regulations

- ARB staff reassessed cost-effectiveness of the 2007 AST EVR regulation
- SLC is cost-effective and provides the bulk of reductions
- Phase I EVR upgrade costs are higher than was anticipated
- Phase I and Phase II cost-effectiveness improves as AST throughput increases
- ARB and CAPCOA agreed amendments were needed
 - Maintain emissions reductions where most needed
 - Improve cost effectiveness

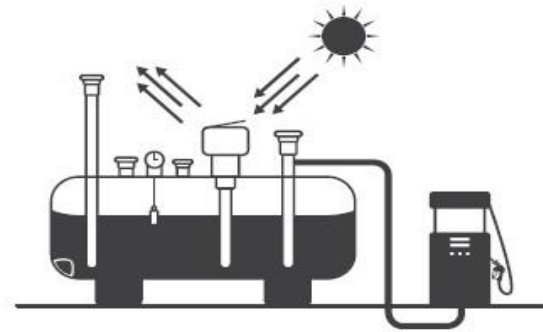
AST Phase I EVR Advisory

- The decision to propose amendments came less than a year before the Phase I EVR upgrade deadline
- AST Advisory Issued on February 28, 2014
- Intended to avoid unnecessary upgrade expenses
- Committed ARB staff to develop a formal regulatory proposal

Standing Loss Control

- Retain Current Requirements -

- SLC provides the bulk of AST emission reductions
- SLC is highly cost effective
- SLC upgrade deadline has passed
- Outreach to promote voluntary use of SLC on unregulated AST
 - Potential for significant net savings over time



**Financial Benefits of Installing
Vapor Recovery Equipment
on Aboveground Gasoline
Storage Tanks (ASTs)**

Proposed Amendments to Phase I EVR Requirements

- Certain ASTs would be allowed to continue using their existing Phase I vapor recovery system beyond the July 1, 2014 deadline to upgrade to Phase I EVR
- Eligibility for continued use of existing Phase I vapor recovery system would be based on the following factors:
 - Federal ozone attainment status and non-attainment classification
 - Tank throughput
 - Population density
- Criteria closely aligns with district air quality needs

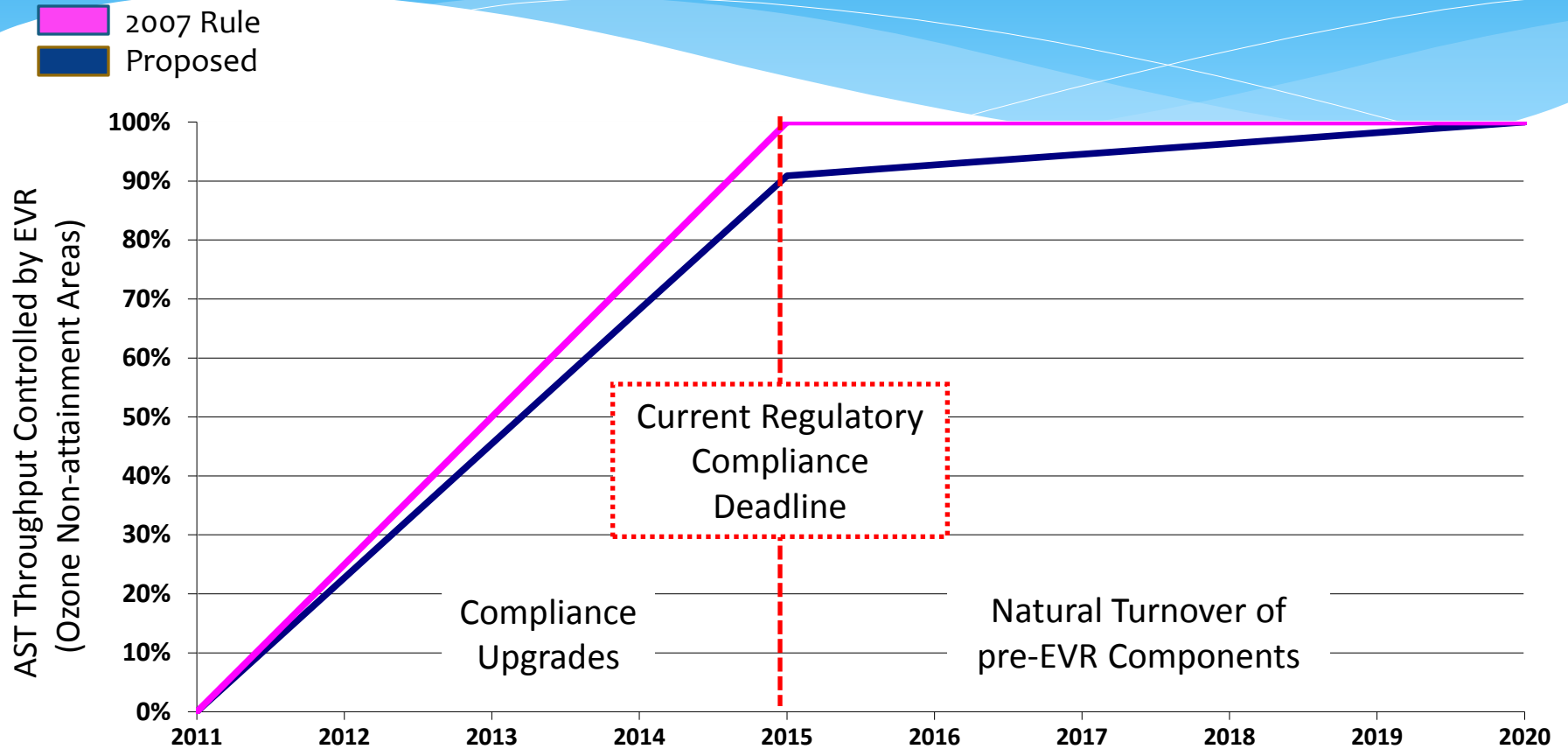
Proposal for Continued Use of pre-EVR Phase I



Phase I Replacement Components

- Facilities that are allowed to continue using existing pre-EVR Phase I systems must use compatible EVR replacement components if available
- All ASTs will migrate toward Phase I EVR as pre-EVR components reach the end of their useful lives
 - For analysis of the proposal, staff assumed a five-year life for existing pre-EVR systems
- ARB staff has issued an Advisory listing compatible components

Statewide Emission Implications of Delayed Phase I EVR Implementation



Cumulative statewide forgone emission reductions of 16 tons total.
(Assumes 5-year life for pre-EVR Phase I components.)

Cost Savings of AST Proposal

(assumes 5-year life of pre-EVR Phase I components)

- About 2,100 AST owners are expected to experience savings by continuing to use their current pre-EVR systems
- Savings are a result of two mechanisms:
 - Realizing the full value of money spent on current pre-EVR Phase I systems
 - Delaying expense of purchasing a new EVR Phase I system
- Total savings of approximately \$3.6 million statewide
 - Average of about \$1,700 per affected AST

Summary of AST Proposal

- Provides relief from Phase I EVR upgrade deadline for ~57% of ASTs
- Achieves ~91% of Phase I EVR emissions reductions by the original July 1, 2014 deadline
 - Remaining ~9% will be achieved over time as pre-EVR systems reach the end of their useful life
- Retains emission benefits where most needed
- Provides significant cost savings and improves cost effectiveness

Phase II EVR

- Amend at a Future Date -

- Phase II EVR is unlikely to be cost effective for lower throughput AST
- Emissions reductions may not be urgently needed in certain regions of the state
- Cost of Phase II EVR system is unclear at this time
- Phase II EVR applicability should be addressed in a future rulemaking
 - Existing AST have until 2019 to upgrade to Phase II EVR

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ECO Nozzle Staff Proposal

- Establish certification standards for a new generation of conventional gasoline dispensing nozzle
- Use is limited to fleet refueling applications
- Will provide emission benefits and potential cost savings for California station owners
- Is likely to provide benefits for other states considering various gas station control options

Conventional Nozzle vs. EVR Nozzle

Conventional Nozzle



- Used in California prior to vapor recovery program
- Still used in many states
- Relies on vehicle-based system for vapor control
- No standards for spillage or liquid control
- Least expensive nozzle type

EVR Nozzle



- Required at gas stations throughout California
- Captures refueling vapors and returns them to the gas station
- Includes spillage and liquid control standards
- Complements vehicle-based vapor control system
- More expensive than conventional nozzle

ECO Nozzle



- ECO nozzles are intended for use with vehicle-based vapor control systems
- Lower emissions than conventional nozzles
- Less costly than EVR nozzles

Nozzle Type	Vapor Controls	Liquid Controls	Cost
Conventional	No	No	Lowest (\$65)
EVR	Yes	Yes	Highest (\$440)
ECO	No	Yes	Middle (\$250)

ECO Nozzle Proposal

- ECO nozzle standards will be identical to EVR nozzles for the following criteria:
 - Post Fueling Drips, Liquid Retention, Spitting, Nozzle Interlock
- Spillage standard will be $\frac{1}{2}$ of the current EVR nozzle spillage standard
 - 0.12 versus 0.24 lbs. per 1,000 gallons dispensed
 - Not expected to increase costs
 - Consistent with current EVR nozzle certification results

ECO Nozzle Proposal

- Certification Process -

- Based on current procedure for EVR nozzles
- Evaluation of nozzles installed at an operating gas station for a minimum of 180 days
 - Evaluation uses existing EVR test procedures
- Upon successful completion of evaluation, nozzles will be listed in an Executive Order
- ECO Nozzle would be required at suitable fleet facilities within four years after Executive Order is issued

Benefits for California

- Initially, ECO nozzle implementation will have a very small impact in California
 - Only ~325 suitable fleet facilities currently in California
- Potential for broader usage as prevalence of vehicle-based vapor controls increases



National Benefits

- ECO nozzle is expected to have significant impact nationally
 - 17 states have expressed interest in ECO nozzles
 - These 17 states would collectively reduce ROG emissions by 33 tons per day



Source: JLARC staff review of other states Stage II requirements.

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Additional Changes to EVR Certification Procedures

- Several changes are proposed to clarify EVR manufacturers' existing requirements to:
 - Provide details about each component that is submitted to ARB for certification
 - Produce components that match those certified
 - Respond to in-use performance issues and warranty claims
- These changes will be incorporated into CP-201, CP-206, and the new CP-207

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Conclusions

- Historically, vapor recovery in California has been based on a single statewide standard
- Today's proposal provides a more tailored approach based on regional and site-specific criteria
- In the future, we expect that regulations will be amended to allow for a variety of controls that could be employed based on regional or site-specific needs
 - Protect public health and the environment
 - Maximize cost-effectiveness

Staff Recommendation

- Staff recommends that the Board approve today's proposal
 - Increased cost-effectiveness for AST Phase I EVR
 - Reduced emissions at fleet fueling facilities
- Staff will continue working to identify opportunities to improve the vapor recovery program