



WAREHOUSE ISR WORKING GROUP

9/19/19

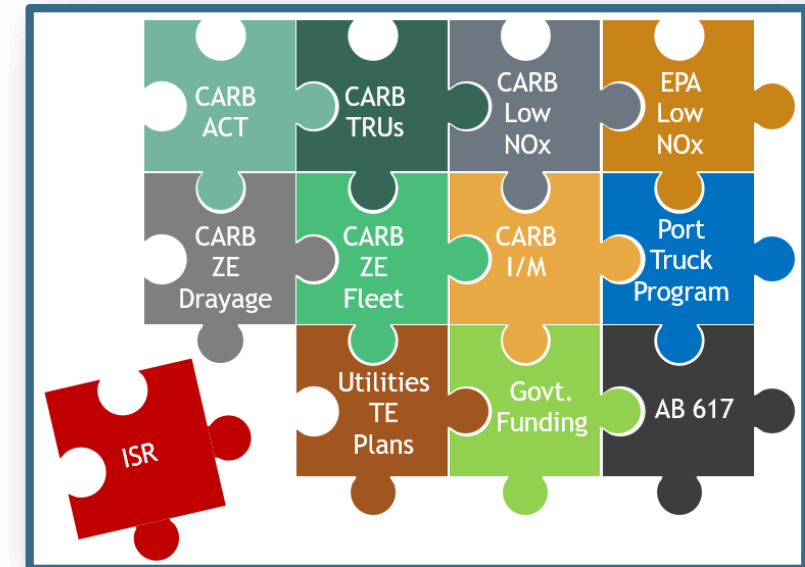


OVERVIEW

- Background
- Potential Method to Determine the Amount of WAIRE Points for Facility Compliance
- Potential Approaches for Two Menu Options
- Potential Role of Incentives for Two Menu Options
- Expected Topics for Future Meetings:
 - Continued Discussion of Scenario Development / Menu Option Approaches / Role of Incentives
 - SIP Credit
 - Potential Stringency of Rule
 - Enforcement & Compliance
 - Real world examples

BACKGROUND

- Warehouse ISR aims to:
 - Facilitate and enhance local and regional emission reductions together with all other state and federal activities
 - Focus on actions and investments that facilities can make
 - Provide multiple options for compliance
- Previous Working Group meeting discussed the proposed regulatory concept for warehouse ISR
 - Menu-based points system
 - Warehouse Actions and Investments to Reduce Emissions - WAIRE Program
- Facility operators must carry out actions and investments every year by completing items from an a la carte menu



DEVELOPMENT OF RULE DETAILS

- Stakeholders in previous meeting requested more information about rule implementation (e.g., specific examples)
- Meeting today and in future will discuss potential approaches, progressively diving deeper into the details
- We encourage feedback as details continue to be developed



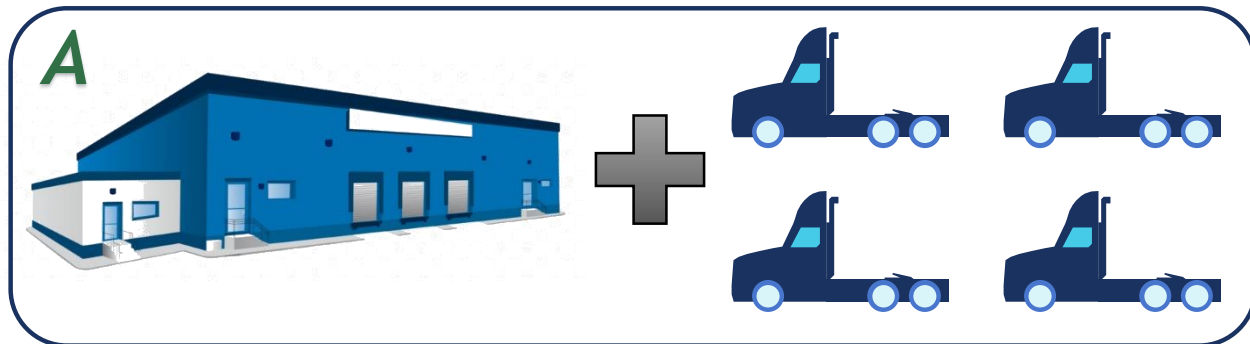
QUESTIONS TO BE ADDRESSED TODAY

1. How would a facility know how many WAIRE Points they need in a given year?
 - a. What if a facility operator did not operate the building an entire year?
2. What are the components that determine the value of a WAIRE Point?
 - Two options: ZE/NZE truck purchase and ZE/NZE truck visits explored further
3. What is the role for incentives with the proposed WAIRE Program?

EXAMPLE FACILITY SCENARIOS

Facility Scenario A

- 500,000 sf distribution center (dry)
- Facility operator has occupied building for more than one year
- Facility operator owns a fleet of on-road trucks

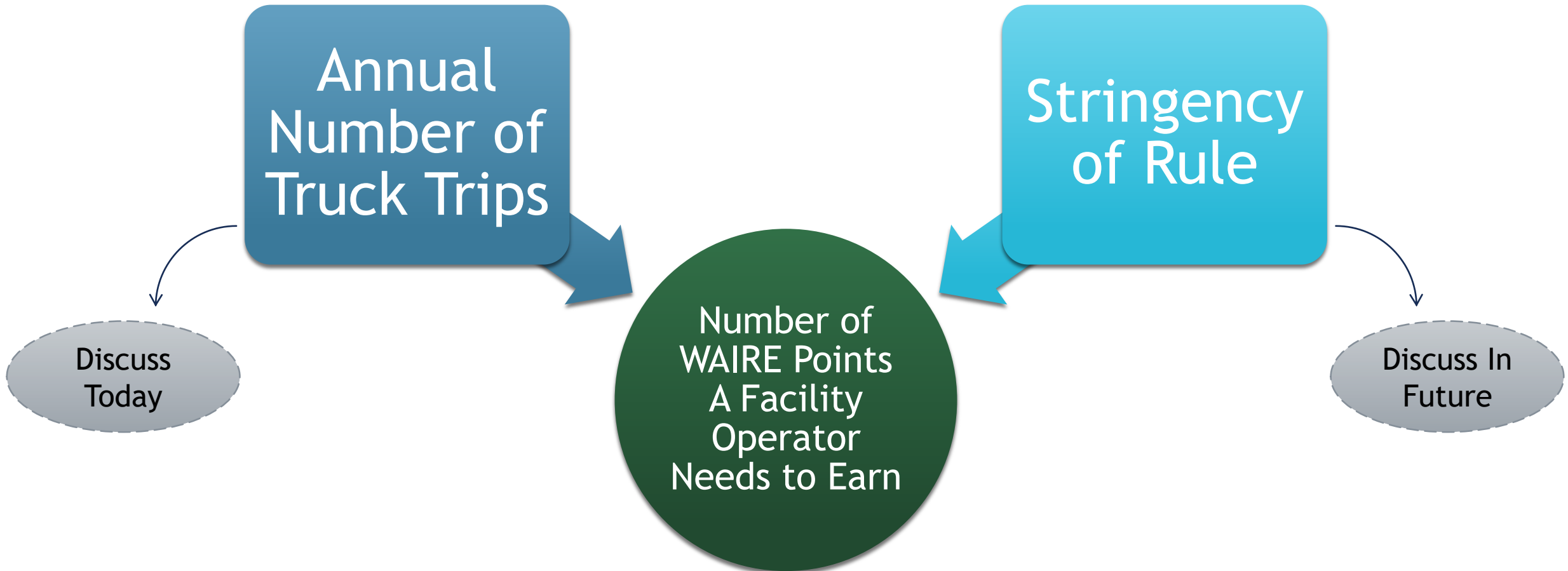


Facility Scenario B

- 500,000 sf distribution center (dry)
- Facility operator has occupied building for 6 months
- Facility operator does not own a fleet of on-road trucks



QUESTION 1: HOW WOULD A FACILITY KNOW HOW MANY WAIRE POINTS THEY NEED IN A GIVEN YEAR?



POTENTIAL METHOD TO DETERMINE THE NUMBER OF TRUCK TRIPS AT A FACILITY

- Every year, the warehouse operator submits to South Coast AQMD the total number of trucks that entered and exited their truck gates for the previous twelve months
 - Primary data source is actual data from that facility
 - Default truck trip rates can be used as a supplement if facility-specific data is unavailable
- Truck emissions vary by truck type → proposing to require facility operators to report two types of truck trips
 - Tractor-trailer (including bobtails) and ‘straight’ trucks for facility-specific data
 - 4+ axle trucks and 2- or 3-axle trucks using default truck trip rates
- Simplifying assumption:
 - Tractors = 4+ axle trucks = Class 8
 - ‘Straight’ trucks = 2- or 3-axle trucks = Class 4-7

Truck Categorization

➤ Class

Class 4 - 14,001 to 16,000 lbs



Class 5 - 16,001 to 19,500 lbs



Class 6 - 19,501 to 26,000 lbs



Class 7 - 26,001 to 33,000 lbs



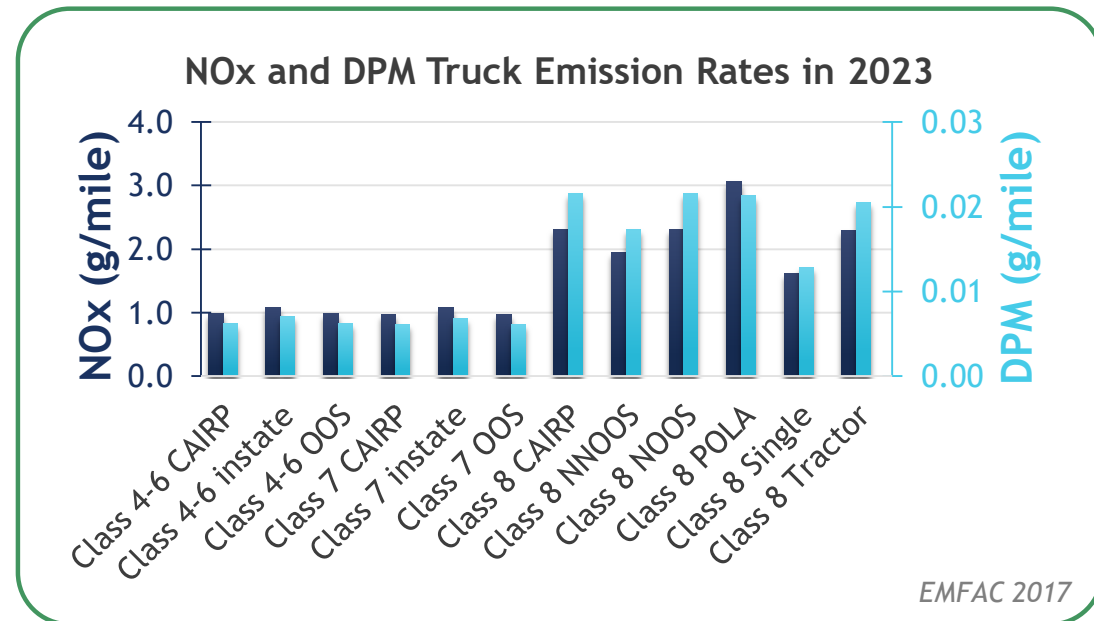
Class 8 - 33,001 lbs & Over



- *Tractor-Trailer vs. ‘Straight’*
- *Number of Axles*

RATIONALE FOR COLLECTING DATA ON ONLY TWO TRUCK TYPES

- Aiming to minimize amount of reporting/recordkeeping needed for compliance
- Facility operators do not necessarily know the class of truck visiting their facility
 - They can more readily determine if a load is in a trailer vs. a 'straight' truck
 - Trailers typically pulled behind class 8 trucks
- Emission rate is distinct between class 4-7 trucks and class 8 trucks
 - NO_x: Class 8 ≈ 2X Class 4-7
 - DPM: Class 8 ≈ 3X Class 4-7
- For purpose of rule, use weighted truck trips
 - 1 Class 8 truck = 2.5 Class 4-7 trucks

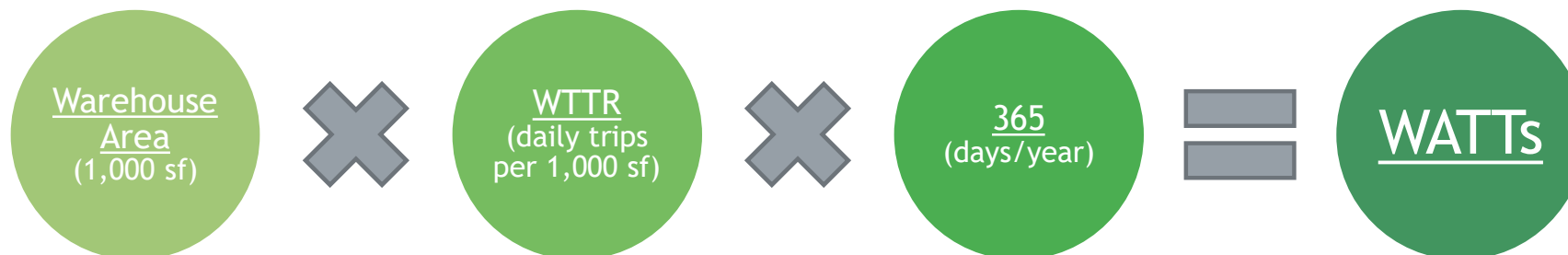


POTENTIAL DEFAULT TRUCK TRIP RATES

| Warehouse Type | Class 8 / Tractor-Trailer / 4+ Axle (Average daily trips per 1,000 sf of warehouse building area)^ | Class 4-7 / 'Straight' Trucks / 2- and 3-Axle (Average daily trips per 1,000 sf of warehouse building area)^ | Weighted Truck Trip Rate (2.5 × Class 8 + Class 4-7) |
|--|--|--|---|
| High Cube Transload & Short Term Storage (≥200k sf) ^A | 0.33 | 0.12 | 0.95 |
| Warehouse (100k - 200k sf) ^{A, B} | 0.21 | 0.14 | 0.67 |
| Cold Storage (≥100k sf) ^A | 0.75 | 0.29 | 2.17 |

^A ITE Trip Generation Manual (10th Ed.), ^B Fontana Truck Trip Study (2003)
[^] Trip generation rates reported as one-way trips (entering + exiting = 2 trips)

➤ Weighted Truck Trip Rate (WTTR) used to determine Weighted Annual Truck Trips (WATTs)*



* WTTR and WATTs not appropriate for analyses outside of ISR (e.g., CEQA) ¹⁰

DETERMINING WEIGHTED ANNUAL TRUCK TRIPS AT A FACILITY - POTENTIAL FACILITY EXAMPLE 1

Facility A

- Facility-specific truck trip data available
 - 50,000 actual tractor-trailer trips in previous year
 - 20,000 actual straight truck trips in previous year
- WATTs = $2.5 \times 50,000 + 20,000 = 145,000$
- WATTs & Rule Stringency* will determine the number of WAIRE Points that need to be earned for that year



DETERMINING WEIGHTED ANNUAL TRUCK TRIPS AT A FACILITY - POTENTIAL FACILITY EXAMPLE 2

Facility A

- Facility-specific truck trip data unavailable*

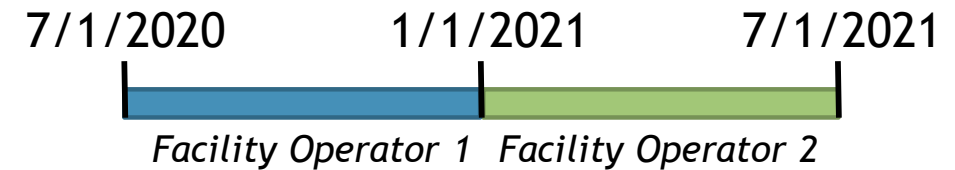


- WATTs for prior 12 months uses default WTTR
- $500 \text{ (tsf)} \times 0.95 \text{ (weighted daily trips/tsf)} \times 365 \text{ (days/year)} = 173,375$
- WATTs & Rule Stringency** will determine the number of WAIRE Points that need to be earned for that year
 - Rule Stringency would be the same regardless if default trip rates or actual data used

***Method for determining stringency and potential level of stringency to be discussed at future working group meetings* 12

QUESTION 1a: WHAT IF A FACILITY OPERATOR DID NOT OPERATE THE BUILDING AN ENTIRE YEAR?

Facility B

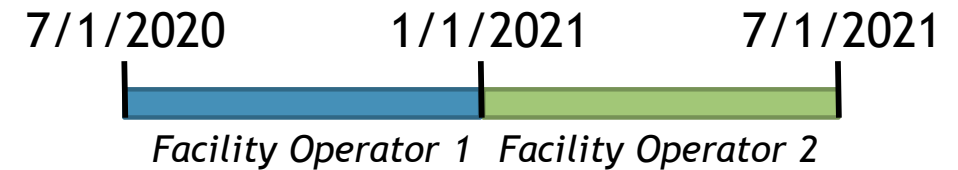


- Two facility operators in twelve month period
- Current ISR concept requires annual compliance with WAIRE Program
 - Industry stakeholders have stated that short term leases are common (e.g., ≤ 3 years)
- Compliance should only be applicable to a facility operator's own activities - not a previous tenant
- Proposing that upon departing a site, first facility operator must submit report on how they earned WAIRE Points for their prorated share

DETERMINING WEIGHTED ANNUAL TRUCK TRIPS AT A FACILITY - POTENTIAL FACILITY EXAMPLE 3

Facility B

- Two facility operators in twelve month period
- Facility-specific truck trip data available from both facilities



Facility Operator 1

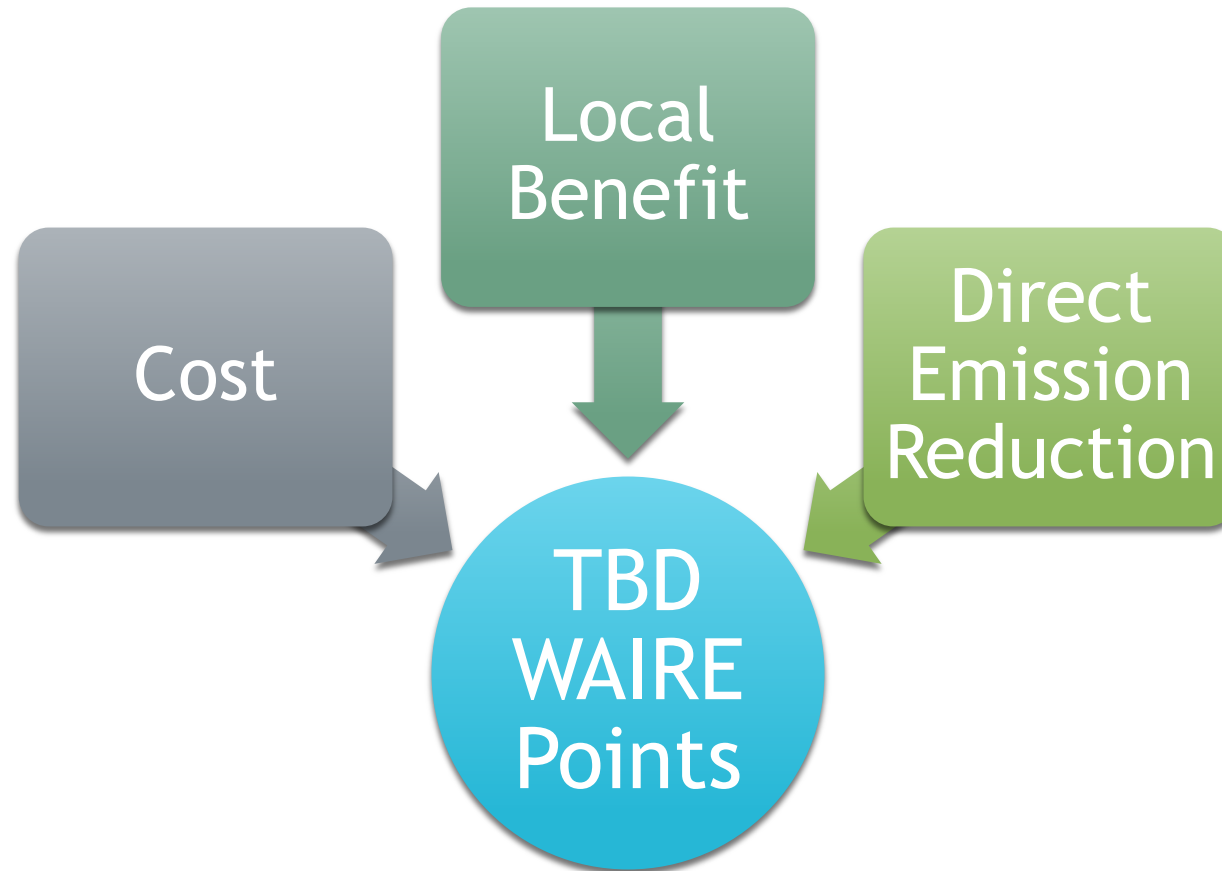
- 30,000 actual tractor-trailer trips
- 10,000 actual straight truck trips
- WATTs = $2.5 \times 30,000 + 10,000 = \underline{85,000}$

Facility Operator 2

- 50,000 actual tractor-trailer trips
- 25,000 actual straight truck trips
- WATTs = $2.5 \times 50,000 + 25,000 = \underline{150,000}$

Compliance requirement higher for Operator 2 than Operator 1 in this example, even in same building

QUESTION 2: WHAT ARE THE COMPONENTS THAT DETERMINE THE VALUE OF A WAIRE POINT FOR EACH MENU ITEM?



- Rule will include Supplemental Handbook that includes calculation methods for each component

POTENTIAL GENERAL APPROACH TO DETERMINING VALUE OF A WAIRE POINT

- Supplemental Handbook will include default calculations of Costs, Local Benefits, and Direct Emission Reduction for each menu item
 - Facility operators would not necessarily be required to report costs, calculate local health risk, or quantify facility-specific emission reductions
- Each menu item will be correlated with a single metric
 - Example metric: Using a ZE yard truck = annual hours of use

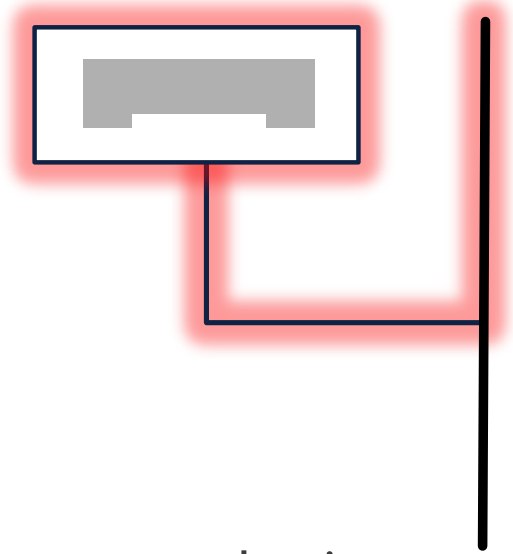
INITIAL CONSIDERATIONS FOR INCORPORATING COST OF IMPLEMENTING A WAIRE PROGRAM MENU ITEM

- Aim of including Cost component is to promote equitable effort for all facility operators, regardless of menu item chosen
- Not all menu items result in a readily quantifiable direct emissions reduction, but are beneficial actions/investments well suited to an indirect source rule
 - Example: Installing a ZE truck charger



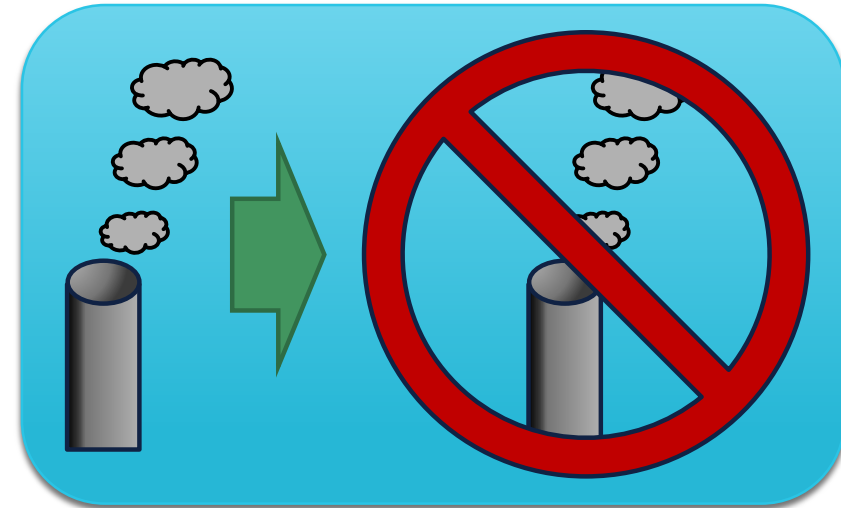
INITIAL CONSIDERATIONS FOR INCORPORATING LOCAL BENEFITS WHEN IMPLEMENTING A WAIRE PROGRAM MENU ITEM

- Aim of including a Local Benefit (LB) component is to encourage facility operators to implement actions and investments that benefit communities affected by local emissions impacts
- Previous Working Group slides included concept where some menu items may be weighted heavier if a facility is near sensitive receptors
 - Stakeholder feedback → this could lead to facilities closer to sensitive receptors having less stringent requirements than equivalent facilities farther away
- Staff considering to instead include a potential uniform Local Benefit for each menu item
 - Given dense urban environment, and prevalence of truck routes throughout the air basin, need for localized benefits is widespread



INITIAL CONSIDERATIONS WHEN INCORPORATING DIRECT EMISSION REDUCTIONS WHEN IMPLEMENTING A WAIRE PROGRAM MENU ITEM

- Aim of including Direct Emissions Reduction (DER) component is to ensure that lower cost items with higher emission reduction benefit can be used for compliance
- The direct emission reduction for many menu items is highly variable
 - Example: Purchasing a ZE truck vs. using a ZE truck
- High cost purchase of equipment can provide early WAIRE Points, while low cost usage of that same equipment can provide ongoing WAIRE Points
- Direct Emissions Reduction of menu items will differ from potential Local Benefit
 - Example: ZE yard truck (LB same as DER) vs. NZE on-road truck (LB and DER different)



DRAFT MENU ONE-TIME ACTIONS

➤ If LB or DER = **X**, then that component would not affect the WAIRE Point value of that menu item

*Seeking
feedback*

| One-Time Actions/Investments | Potential Metric | Potential Localized Benefit | Potential Direct Emissions Reduction |
|--|--------------------------------|-----------------------------|--------------------------------------|
| Install onsite truck ZE charging/fueling stations and infrastructure | # of chargers | X | X |
| Install near-site truck ZE charging/fueling stations and infrastructure | # of chargers | ✓ | X |
| Establish new onsite or near-site areas for repairs/overnight rest | # of trucks that can be served | ✓ | X |
| Install plugs/infrastructure for Transportation Refrigeration Units (TRUs) | # of TRU plugs | X | X |
| Purchase ZE TRUs | # of TRUs | X | X |
| Purchase ZE yard trucks | # of yard trucks | X | X |
| Purchase ZE or NZE on-road trucks | # of on-road trucks | X | X |
| Install onsite solar panels | Size of system (kW) | X | X |
| Install onsite energy storage (e.g., batteries) | Size of system (kWh) | X | X |
| Install air-filtration for nearby sensitive receptors | # of HVAC systems | ✓ | X |

DRAFT MENU ONGOING ACTIONS

➤ If LB or DER = **X**, then that component would not affect the WAIRE Point value of that menu item

*Seeking
feedback*

| Ongoing Actions/Investments | Potential Metric | Potential Localized Benefit | Potential Direct Emissions Reduction |
|--|-----------------------|-----------------------------|--------------------------------------|
| Use onsite truck ZE charging/fueling stations | kWh used | ✓ | ✓ |
| Use TRU plugs | kWh used | ✓ | ✓ |
| Use ZE TRUs | Hrs of use | ✓ | ✓ |
| Use ZE yard trucks | Hrs of use | ✓ | ✓ |
| ZE/NZE truck visits | # of visits | ✓ | ✓ |
| Produce electricity from solar panels | kWh produced | X | X |
| Use onsite energy storage | kWh used | X | X |
| Provide filters for air-filtration systems for surrounding sensitive receptors | # of filters provided | ✓ | X |
| Over-comply with Rule 2202 (employee commute reduction program), or opt-in if not required to comply with 2202 | 2202 metrics | ✓ | ✓ |
| Pay mitigation fee directed to: a) trucks or b) ZE charging/fueling stations | Amount of \$ paid | X | X |

POTENTIAL APPROACH FOR DETERMINING WAIRE POINTS COMPONENTS FOR ZE/NZE TRUCK PURCHASE

Facility A

- Cost → Incremental purchase price of ZE/NZE truck vs. conventional diesel
- Local Benefit → No benefit
- Direct Emissions Reduction → No benefit
- Potential information that must be kept/reported to earn WAIRE points for ZE/NZE truck purchase
 - Vehicle Identification Numbers of trucks purchased
 - Proof of date of purchase
 - Proof of truck ownership

POTENTIAL APPROACH FOR DETERMINING WAIRE POINTS COMPONENTS FOR ZE/NZE TRUCK VISITS

Facility A or B

- Cost → Estimated price difference on a per trip basis for ZE/NZE vs. conventional diesel using total cost of ownership
- Local Benefit → Daily emissions difference between ZE/NZE vehicle activity and conventional diesel vehicle activity within $\frac{1}{4}$ mile of facility
 - Include cancer potency weighting for toxics
- Direct Emissions Reduction → Total daily emissions difference between ZE/NZE vehicle activity and conventional diesel vehicle activity
 - Include criteria pollutants and cancer potency weighted toxics

POTENTIAL METHOD TO EVALUATE COST COMPONENT FOR ZE/NZE TRUCK VISITS

Example cost calculations

| Class 8 Truck | Diesel | NZ CNG | Battery-electric |
|-----------------|-----------|-----------|------------------|
| Annual miles | 54,000 | 68,383 | 54,000 |
| Operating years | 12 | 12 | 12 |
| TCO (\$) | \$571,456 | \$624,925 | \$706,266 |

| Population-Weighted Average Miles Traveled per Trip | |
|---|-------|
| Class 8 | 13.10 |

| | Diesel | NZ CNG | Battery-electric |
|-------------------|--------|--------|------------------|
| Class 8 (\$/mi) | 0.88 | 0.76 | 1.09 |
| Class 8 (\$/trip) | 11.55 | 9.96 | 14.28 |

- Total cost of ownership to operate a truck available from CARB Advanced Clean Trucks rulemaking, Ports' Truck Feasibility Study and potentially other sources (?)
 - Seeking feedback on sources of data
- Miles per trip available from EMFAC by truck type (e.g., drayage vs. out of state)
- Multiply TCO (\$/mi) by mi/trip to obtain \$/trip incremental cost

POTENTIAL INFORMATION THAT MUST BE KEPT/REPORTED TO EARN WAIRE POINTS FOR ZE/NZE TRUCK VISITS

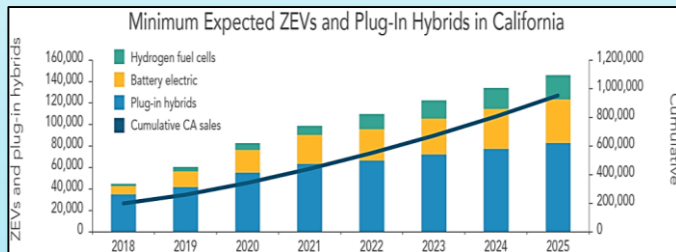
- Recordkeeping:
 - Data required from truck driver:
 - Truck class
 - Truck fuel type
 - Truck model year
 - Timestamped picture taken at facility of front of truck that includes license plate
- Information that must be reported:
 - Number of ZE/NZE truck visits by class, fuel type, model year

QUESTION 3: WHAT IS THE ROLE FOR INCENTIVES WITH THE PROPOSED WAIRE PROGRAM?

- Regulated entities cannot use incentive programs like Carl Moyer, etc. to comply with their regulatory requirements (*except for early or surplus reductions*)
 - Ensures that no ‘double counting’ of regional emissions reductions occurs across multiple programs
 - Ensures that incentive funds go towards changing behavior that would not otherwise occur
- Examples of when incentive funding can be used together with regulations:

INCENTIVES AVAILABLE TO NON-REGULATED ENTITIES

Light Duty ZE Vehicle Requirement for Manufacturers



Incentives Available for Consumers



INCENTIVES DIRECTED TO SPECIFIC REGULATORY PROGRAMS

SOON Regulation: Large Fleets Must Apply for Funding and Use it if Granted



ROLE OF CURRENT INCENTIVE FUNDING PROGRAMS WITH ISR

EXAMPLE 1: PURCHASING TRUCKS/EQUIPMENT OWNED BY A FACILITY OPERATOR

- Facility operators that own trucks can receive WAIRE points for purchasing ZE/NZE trucks
- Incentive funding sources that cannot be used for truck purchase for ISR compliance:
 - Carl Moyer, Greenhouse Gas Reduction Fund (e.g., HVIP, AB 617-related funding, etc.), AB 118 Air Quality Improvement Program (e.g., truck loan assistance), VW Trust
- Rationale:
 - Moyer Guidelines Ch. 2
 - H&S Code 44281(b) and 44391.4(a)
 - CCR Title 13, Ch. 8.2, Sec. 2353(c)(4)
 - CA Beneficiary Mitigation Plan

ROLE OF CURRENT INCENTIVE FUNDING PROGRAMS WITH ISR - CONTINUED

EXAMPLE 2: USING TRUCKS/EQUIPMENT INCENTIVIZED THROUGH MOYER, ETC.

- Facility operators can receive WAIRE Points for ZE/NZE trucks visiting a facility
 - Trucks could be owned by an unaffiliated entity (e.g., a separate motor carrier)
 - Staff is continuing to research possibilities if trucks are owned by facility operator
- Incentive funding that can be used to purchase trucks:
 - Carl Moyer, GGRF, AQIP, VW Trust
- Rationale: Purpose of WAIRE Program is to facilitate local and regional emission reductions through actions and investments at warehouses
 - Regional emission reductions from incentivized trucks cannot be counted towards WAIRE Program during the grant contract life
 - Local emission reductions from trucks visiting a facility would not have necessarily occurred without WAIRE Program

POTENTIAL ROLE OF INCENTIVE FUNDING FROM ISR MITIGATION FEE

- To comply with the warehouse ISR, facility operators could choose to pay into a mitigation fund managed by South Coast AQMD in lieu of picking one of the other menu items
- These funds will be pooled and directed back to the local area from which they came
- New guidance will be developed for the use of these funds
 - Restrictions that are present in Carl Moyer, or other state funding programs can be reviewed to determine if they are appropriate for this new funding stream
 - Staff is open to suggestions on how to structure this new incentive funding program

PROPOSED SCHEDULE (TENTATIVE)

| | Date | Key Activity |
|---|----------------|---|
| ✓ | 8/23/19 | Working Group |
| ✓ | 9/19/19 | Working Group |
| | 9/20/19 | Mobile Source Committee Update on all FBMSMs |
| | 10/29/19 | Working Group |
| | Early November | Evening Public Meetings in Inland Empire and LA County |
| | Mid November | Release Preliminary Draft Rule and CEQA Notice of Preparation |
| | 12/10/19 | Working Group |
| | 1/17/20 | Mobile Source Committee Update |
| | Mid January | Release CEQA Draft Environmental Assessment |
| | 1/30/20 | Working Group |
| | 2/14/20 | Release 75-day package (Draft Rule, Draft Staff Report, Draft Socioeconomic Analysis) |
| | 3/17/20 | Public Workshop |
| | 3/20/20 | Mobile Source Committee |
| | 3/31/20 | Release 30-day package |
| | 5/1/20 | Public Hearing to consider adoption of Warehouse ISR |

NEXT STEPS

- Continue to develop rule concept and draft rule language
- Continue to receive input from stakeholders

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 - www.aqmd.gov/fbmsm for more info