How to Develop a Heavy-Duty Diesel Technology Verification Program

Training Session Delivered by [Name of Presenter, Date]

Created by the U.S. Environmental Protection Agency to support organizations and build capacity in the development of technology verifications programs.

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- Welcome

- Introductions
  - Participants
  - Trainer(s)
  - Assistant trainers
  - Guest speaker(s)
  - Observers
  - VIPs

Housekeeping

- Schedule
  - Start time
  - Guest speaker
  - Morning break
  - Lunch
  - Study tour

  - Afternoon break
  - Adjourn
  - Networking reception

- Logistics
  - Security
  - Internet access
  - Coat room
  - Emergency procedures

  - Bathroom Locations
  - Device protocols
  - Other

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Goals for This Training

- Learn about:
  - Diesel emissions reductions technologies and strategies.
  - How to set up and launch a technology verification program (TVP).
  - Resources to initiate and grow a successful TVP.

- Successful programs do not need to be exactly like SmartWay!

A. Public Health

- Diesel emissions include air pollutants that can cause health problems:
  - Particulate matter (PM)
  - Oxides of nitrogen (NO_x)
  - Contributions to ground-level ozone

- Air pollution can cause respiratory problems, cardiovascular disease, and cancer.

- Children, the elderly, and people with lung or heart disease are particularly vulnerable.

- TVPs benefit public health by reducing diesel emissions.

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B. The Environment

- Diesel emissions damage the natural environment.

- NO_x emissions cause soil acidification; acidify streams, lakes, and rivers; and contribute to ground-level ozone, which damages vegetation.

- Black carbon (BC) is formed by the incomplete combustion of fossil fuels, especially in older vehicles, and has a high global warming potential.

- CO_2, methane, and nitrous oxides contribute to global warming.

C. Objective Performance Evaluation

- TVPs provide unbiased third-party testing and create a "level playing field."

- With proven results, verification can help technologies be adopted and accepted.

- Verification can help fleet owners select the most appropriate technology with confidence.

D. Economic Benefits

- TVPs contribute many economic benefits, such as:
  - Encouraging technical innovation.
  - Fostering local manufacturing and related services.
  - Providing energy security and reducing fuel demand.
  - Offering reputational benefits to help businesses grow.

Group Exercise 1

Identify Benefits of a Diesel Emissions TVP

List the economic, public health, and environmental benefits of reducing diesel emissions in your country or region.

- TVPs aggregate valuable data on emissions reductions and technologies.
    - Make it easier to track program benefits.
    - Provide a deeper understanding of technology performance.
    - Constitute valuable input for regulators.

- TVPs provide opportunities to engage freight industry and others in a common pursuit.

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A. Assessing Air Pollution and Fleet Characteristics

- Has an emissions inventory been conducted?
  - If yes, what type? *Ask your local air quality agency.*
- Are existing inventories sufficient, or is more information needed?
- Based on local/regional environmental concerns, what additional assessment is needed and how can it be completed?
- Use emissions inventories and air quality data to assist in identifying technologies that will have the most positive impacts.
- To identify appropriate technologies, look at:
  - Types of vehicles
  - Age
  - Distances traveled
  - Fuel consumption
  - Amount of idling
  - Other usage characteristics

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GROUP EXERCISE 2

Identify Sources of Emissions Inventory Data

Develop a list of reliable and preferably publicly available data sources to help you better understand your area's emissions inventory. How would you collect data should more be needed?

- What types of technologies address the most problematic pollutants?

    – Exhaust aftertreatment reduces criteria pollutants.

    – Fuel-saving technologies reduce emissions.

    – Idle reduction and behavioral strategies reduce fuel consumption.

    – Fuel strategies reduce CO_2 and criteria pollutants.

- Review operating conditions and transportation-related regulations.

- Look into how other TVPs have maintained their success.

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GROUP EXERCISE 3

Identify Target Technologies

What technologies are well-suited to the emissions challenges your area faces? Are there additional constraints that might preclude promising technologies from having a significant impact?

C. Stakeholder Participation

- Diverse stakeholders will contribute valuable and varied perspectives.

- Early participation will help them feel invested and inspire loyalty, engagement, and advocacy.

- Involve representatives from:
  - Freight industry
  - Manufacturing
  - Testing facilities
  - Public or nonprofit environmental organizations
  - Academia

GROUP EXERCISE 4

Brainstorm Stakeholders

Consider the benefits and risks of a TVP from the different perspectives of multiple stakeholders. What considerations do freight companies, technology manufacturers, testing facilities, environmental organizations, and others have?

A. Performance Goals and Technologies

- Develop clear, quantifiable short- and long-term goals.

- Identify and prioritize potential technologies.

- Estimate the level of participation needed to reach goals, such as number of fleets or retrofits per year.

- Establish activity goals, such as minimum number of companies submitting applications per year.

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Group Exercise 5

Program Goal Setting

List some environmental, participation, and verification goals for your TVP for the first year, then the first five. Map out a plan to reach them.

B. Establish a Budget

- How much funding does your TVP need?
  - Consult other TVP administrators.
  - Create a detailed line-item budget, including general operating costs.
  - Include funds for outreach to manufacturers, especially in early years.

C. Secure Funding

- Research potential local and international sources.

- Clearly frame your TVP in funders' terms.

- Tap stakeholders for ideas and possible matching or dedicated funds.

- Consider in-kind contributions.

- Explore funding a grant program.

- Consider alternate cost structures.

D. Design Program Elements

- Can verified technologies from other programs save you time and startup costs?

- Classify technologies by level of effectiveness and performance level.

- Develop an application for technologies to become verified; map the process for collecting information.

- Establish protocols, define testing requirements, and identify qualified testing facilities.

Group Exercise 6

Pre-Qualified Technologies

List technologies that have been verified under other programs that may pre-qualify for your program.

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Group Exercise 7

Become Familiar with Vendor Applications

Identify potential problems in a sample vendor application and provide recommendations.

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D. Design Program Elements (continued)

- For added confidence, establish in-use testing component.

- Develop procedures to manage program data and protect submitted confidential business information (CBI).

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A. Program Infrastructure

- Staff slowly; start small and grow with each new phase.

- Prioritize program management, voluntary program design, emissions testing, and automotive engineering skills.

- Hire those with strong interpersonal skills and technical experience with trucking.

- Add staff with marketing and brand management expertise to manage outgoing communications.

Group Exercise 8

Stakeholder Role Play

What skills and technical expertise should you look for when hiring program staff?

B. Branding

- Develop program branding and outreach strategies *before* the program launches.

- Create a logo.

- Develop a mission statement.

- Incorporate brand elements consistently into outreach materials.

Group Exercise 9

Create a Brand Platform

Draft a one-page platform that defines the program's mission, unique features, benefits, audience, and stakeholders.

C. Program Website Development

- Map how information will be organized on webpages.

- Put the most important information on home and landing pages.

- Include information on verified technologies, program materials, regulatory updates, database portal, FAQs, and personnel contact information.

- Apply branding.

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- Examine how and where your target audience finds information.

- Ask colleagues and professional connections to help spread information.

- Reach out to prominent industry sources.

- Attend events.

- Invite prospective participants to meet and share materials and ideas.

- Publicly recognize participants.

Group Exercise 10

Communications Plan Basics

Define your target audiences, messages, dissemination approach, and frequency.

E. Managing Program Data

- Build a database to collect and store program information.

- Launch database before first applications are submitted.

- Provide access to test results, verified technologies, and performance.

- Protect sensitive data with adequate security procedures.

A. Evaluate Program Performance

- Perform annual program assessments to identify potential problems and program strengths.

- Track number of applicants and verified technologies installed.

- Calculate emissions reductions and fuel savings.

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Group Exercise 11

Examine an Example Benefits Calculation

Conduct a sample annual emissions benefits calculation.

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B. Collect Feedback

- Collect input to guide adjustments and review effectiveness.

- Develop list of questions for each stage.

- Request both quantitative and qualitative feedback.

- Conduct a survey of test labs, technology vendors, and purchasers of verified technologies.

- Collect feedback through interviews, focus groups, and stakeholder meetings.

Group Exercise 12

Brainstorm Feedback Questions

What questions could you ask to collect helpful feedback for your program?

C. Make Interim Changes

- Review performance assessments and feedback.

- Identify problem areas.

- Modify processes, guidelines, instructions, or outreach materials to address concerns.

- Re-evaluate technologies and adoption rates.

- Consider economic incentives for using individual technologies, and review viability for future.

- Update list of certified labs.

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