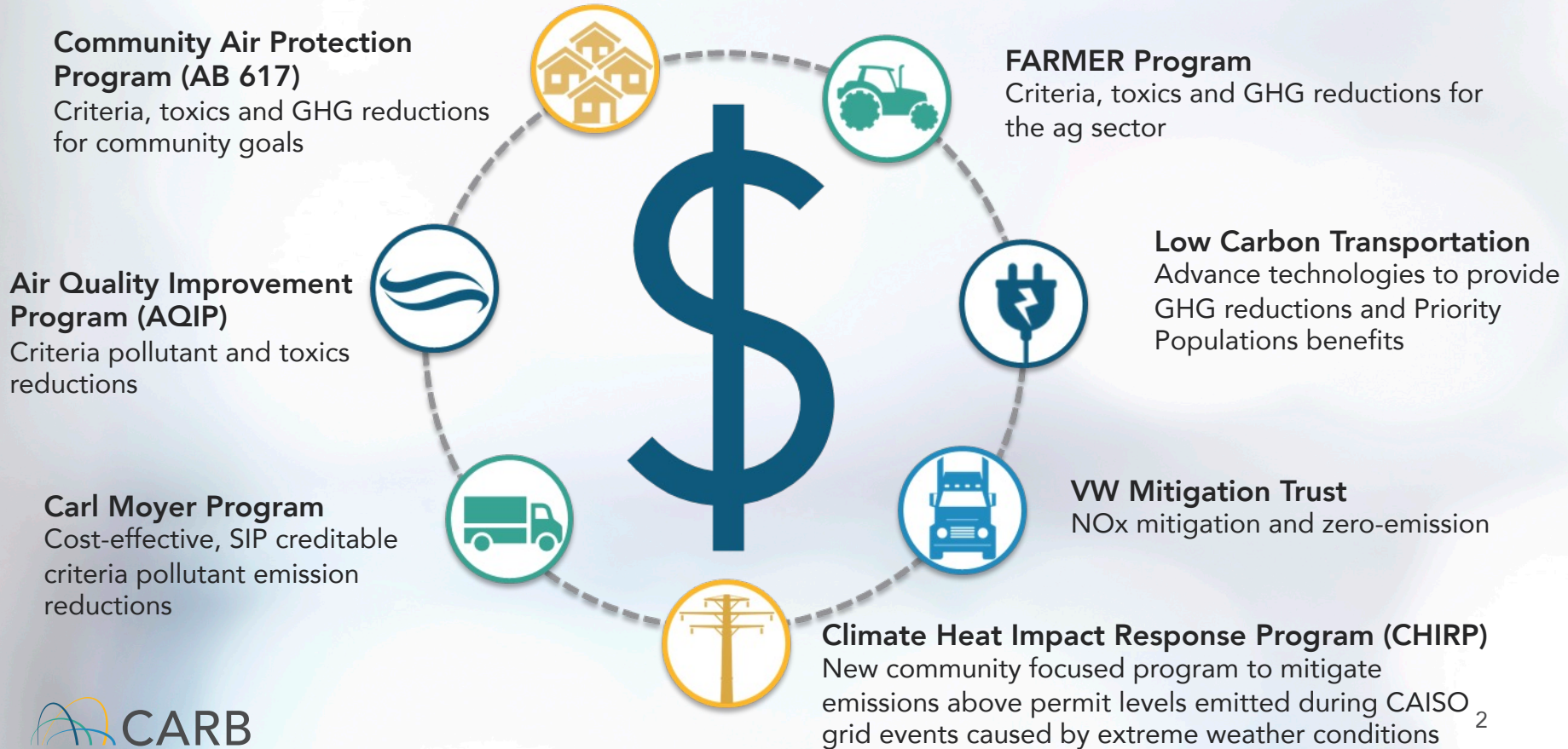




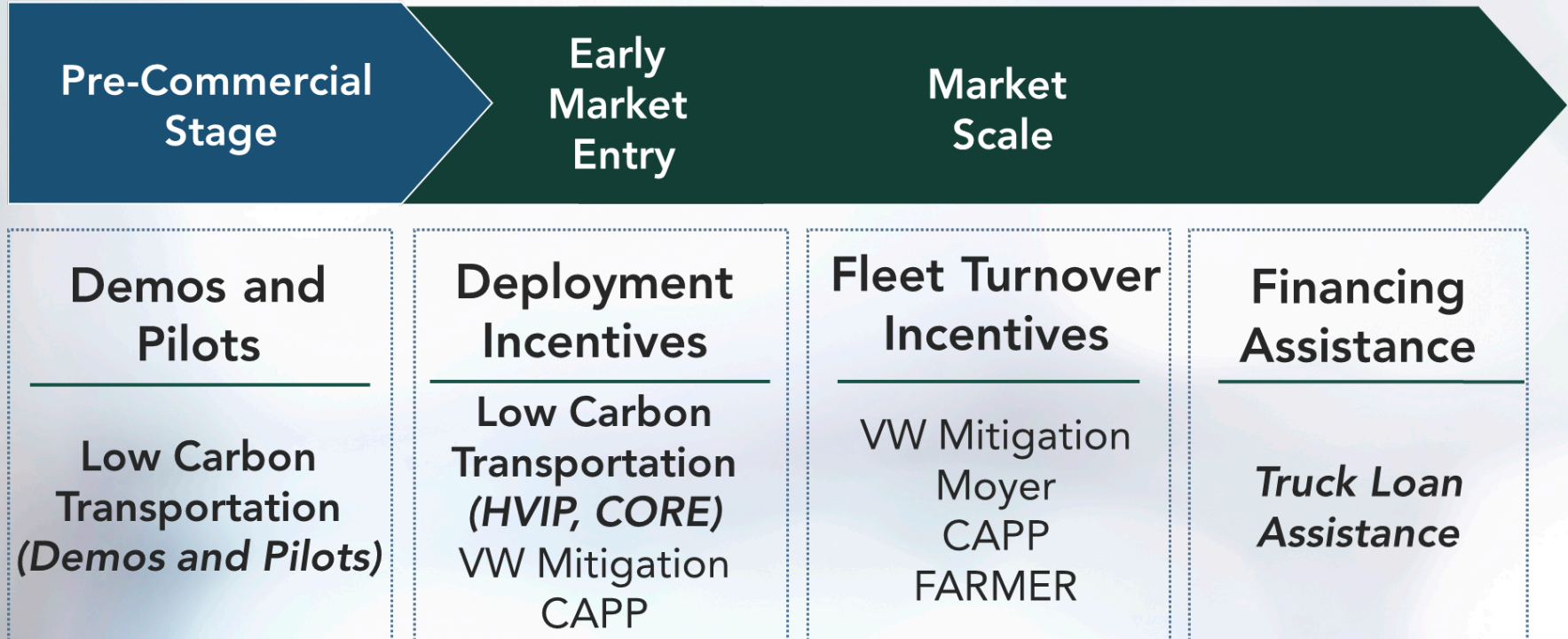
Heavy-Duty Incentive Programs

Steering Investments to Reduce Transportation Emissions
Peter Christensen
June 22, 2022

CARB Portfolio of Incentive Programs



Supporting Technology Advancement



Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)

First-come, first served vouchers.

No application window. Immediate discount at sale.

Dealers learn the voucher system.

Fewer complications for fleets.

Funding is set aside for each voucher.

Price certainty. No scrappage.

User friendly voucher process.

For both purchasers and lessees.

7,000+

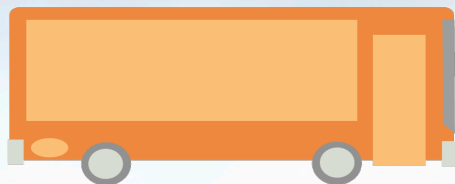
total clean-tech
vehicles deployed

\$800 million+

total funding given for
clean-air trucks & buses

1500+

vehicle purchasers
participating



Clean Off-Road Equipment Voucher Incentive Project (CORE)

- Launched in February 2020: 500 vouchers and \$71M
- Originally - funding for eligible zero-emission cargo handling equipment, terminal tractors, rail car movers, airport tugs, loaders & GPUs, and transportable refrigeration units (TRUs)
- FY2021-2022 funding: \$165M – expand funding beyond freight
 - \$30M ZE equipment purchase by small business landscaping companies
 - Zero-emission agriculture and construction equipment added to eligibility list



Upcoming Heavy-Duty Demonstration Projects (FY2021-22)

- \$40M for off-road demonstration and pilot projects
 - Municipal Green Zones
 - Resilient ZE vessel charging project
 - Modular ZE-capable cargo handling equipment demonstration
 - Emission reductions from ocean going vessels
 - Zero-emission intrastate line haul locomotive

Metrics of Success

Creating Healthy Communities



188 million

cleaner-than-diesel miles traveled in California by HVIP-funded vehicles, 2010 to 2020.



57% of vouchers

in HVIP have funded vehicles deployed in Disadvantaged Communities, as identified in CalEnviroScreen 3.0

Supporting Technology Evolution



Growing the Green Economy



\$2.2 billion

additional dollars of other public and private spending toward these purchases — over \$4 for every \$1 of HVIP investment. Leveraged private spending represents purchases redirected from traditional technologies to clean technologies.



\$530 million

funded by HVIP toward the purchase of nearly 9,000 clean vehicles since 2010.

Continued Focus on Equity

- Continue to follow and incorporate equity principles
- Prioritizing community inclusion and engagement across programs
- Increasing emphasis on measuring progress and benefits beyond GHGs (e.g. jobs, socioeconomic)
- Expanding workforce training and career development opportunities to boost the green economy
- Furthering State, local, and community partnerships

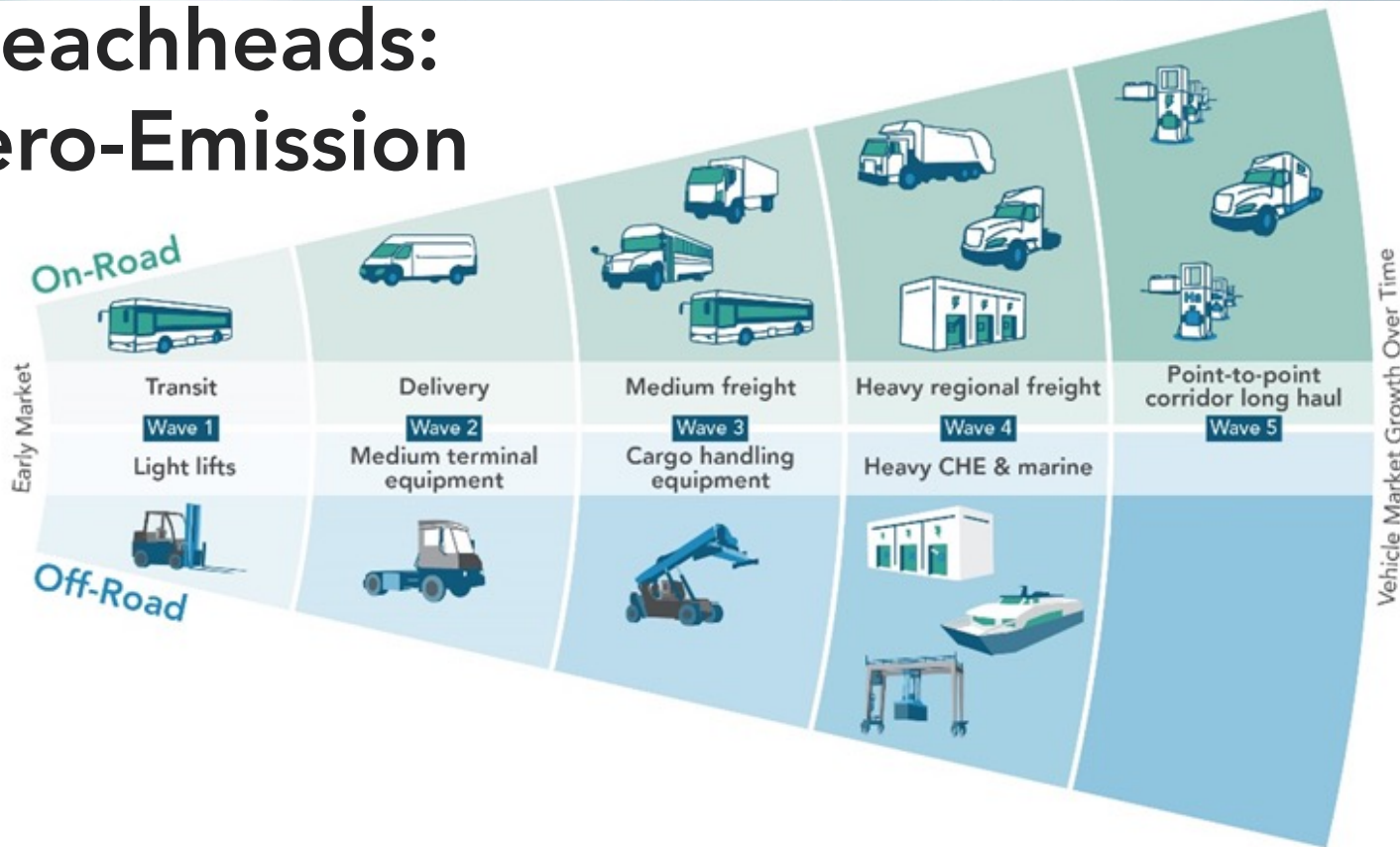
Incentive Program Contacts and Websites

- HVIP – CaliforniaHVIP.org
 - Andrea Morgan, Andrea.Morgan@arb.ca.gov
- CORE – CaliforniaCORE.org
 - Todd Sterling, Todd.Sterling@arb.ca.gov
- Advanced Technology Demonstration and Pilot Projects
 - [Low Carbon Transportation Investments and AQIP Projects | California Air Resources Board](#)
 - Earl Landberg, Earl.Landberg@arb.ca.gov
- Innovative Strategies Branch
 - Peter Christensen, peter.christensen@arb.ca.gov



Thank you!

Beachheads: Zero-Emission



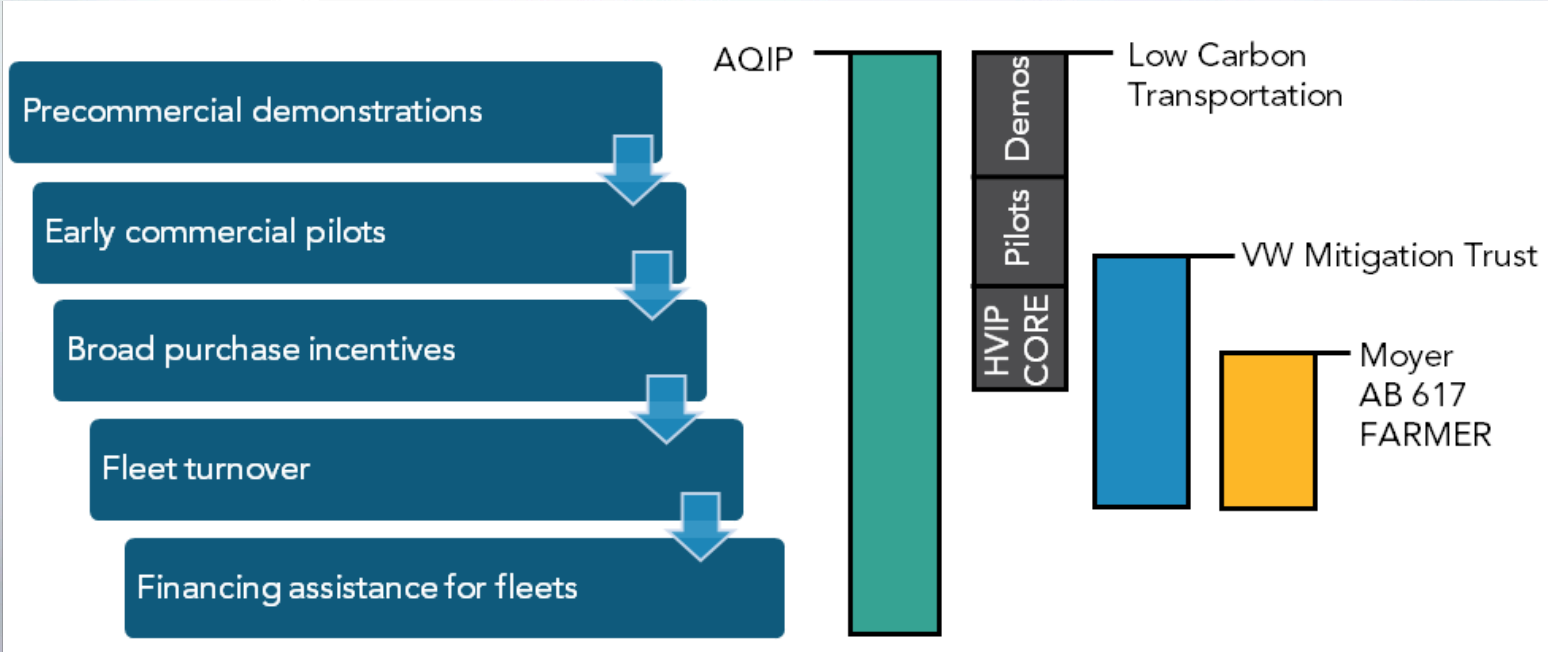
Market Progress Over Time

Similar drivetrain and component sizing can scale to early near applications

Expanded supply chain capabilities and price reductions enable additional applications

Steadily increasing volumes and infrastructure strengthen business case and performance confidence

Heavy-Duty Technology Progression Through CARB Incentive Programs



Executive Order N-79-20



100% ZEV sales by 2035

Full transition to
ZEV short-haul/drayage trucks
by 2035



Full transition to **ZEV buses &
heavy-duty long-haul trucks**
by 2045*



Full transition to
ZE off-road equipment
by 2035*

*where feasible

Volkswagen Environmental Mitigation Trust

California's allocation: **\$423 million** for NOx mitigation

Five funding categories:

1. **\$130M** for Zero-emission transit, school and shuttle buses
2. **\$60M** for Combustion freight and marine
3. **\$90M** for Zero-emission Class 8 freight and port drayage trucks
4. **\$70M** for Zero-emission freight and marine equipment
5. **\$10M** for charging and hydrogen infrastructure for LDVs

www.californiavwtrust.org/

- Scrap and replace program – all replaced vehicles and equipment must be destroyed
- All funding released first-come, first served in at least 2 installments, except light duty ZEV infrastructure



CARB's VW Mitigation Trust website
ww2.arb.ca.gov/vwmitigationtrust