Clean Truck Challenge

Core defects and evidence

1) Federal vulnerability: unlawful reach to out-of-state trucks

- **EPA's position.**
  - EPA proposes to **partially disapprove** California's SIP for Clean Truck Check **to the extent it applies to vehicles registered out-of-state or out-of-country**, and to approve the remainder.
  - EPA flags California's **extraterritorial** application as unusual in the SIP context.
  - This invites litigation and weakens the program over a large share of trucks entering California.
- **Enforcement asymmetry.**
  - CARB's main hammer is a **CA DMV registration hold**, which only bites **California-registered** vehicles.
  - CARB's own guidance shows holds block almost all DMV transactions, yet **title transfers to out-of-state buyers still proceed**, and out-of-state trucks lack a CA DMV record to hold.
  - This creates unequal burdens and market distortion against California-based fleets.
- **Dormant Commerce Clause risk.**
  - Imposing ongoing registration, fees, and periodic testing on **interstate carriers that only occasionally enter California** burdens interstate commerce relative to localized benefits.
  - Under **Pike** balancing, a nondiscriminatory state law is unconstitutional if burdens on interstate commerce **clearly exceed** local benefits.
  - Clean Truck Check's extraterritorial reach and uneven remedies heighten the risk that a court finds the burden excessive.
- **EPA's proposed disapproval amplifies instability.**
  - If finalized, EPA would **withhold SIP approval** for the out-of-state coverage.
  - California could still attempt roadside enforcement under state law, but **no federal backstop** and strong constitutional defenses would produce **uneven, contested enforcement**, further tilting the field against CA-registered fleets that remain subject to DMV holds.
- **Leakage and perverse outcomes.**
  - When compliance costs and asymmetric risks rise, **small operators rationally avoid California or re-register elsewhere**, as industry observers already report under California's regulatory stack.
  - That **shifts miles and emissions** to longer detours around California or keeps **older trucks in service outside California**, a classic **emissions-leakage** pattern California's own agencies recognize in other programs.

- Net effect: **higher regional VMT and emissions**, with little in-state air-quality gain.

2) Testing frequency is not justified by heavy-duty data

- **Inadequate Pilot Program Evaluation.**
  - Senate Bill 210 (2019) directed CARB to develop this inspection program and conduct a pilot to inform its design. However, CARB moved forward with the full regulation before properly digesting pilot results.
  - The pilot program's report was released concurrently with the proposed rule – leaving no time to incorporate lessons learned.
  - Pushing out the regulation without heeding the pilot data suggests a lack of sound, evidence-based policymaking.
- **CARB's cadence is modeled, not measured in HD fleets.**
  - Appendix D builds identification, repair, and driver-behavior assumptions from **light-duty Smog Check** data (BAR) and then applies them to heavy-duty trucks (e.g., last-minute repairs, step-wise repair rates, and fraud-detection uplift).
  - CARB assumed statewide identification rates of **70% (non-OBD) / 82% (OBD) in 2024–25**, rising to **80% / 92% in 2026+** due to "fraud detection" and PEAQS expansion—again derived from LDV experience, not HDV field trials.
- **Quarterly vs semi-annual benefits come from sensitivity runs, not HD field evidence.**
  - CARB defined three frequencies: **annual (365 days), semi-annual (180), quarterly (90 for OBD)**.
  - The emissions gap among these options is shown only by model runs.
  - There is **no heavy-duty empirical study** demonstrating quarterly testing outperforms annual/semi-annual in real-world fleets.
- **CARB's own tables show diminishing returns from more frequent tests.**
  - For **2027 statewide NOx (tpd)**: **Legal baseline 146.8; Annual 110.4; Semi-annual 83.8; Quarterly 70.8.**
  - Moving from semi-annual → quarterly yields only **~13 tpd** more reduction while doubling OBD tests; the jump from annual → semi-annual is **~26.6 tpd**.
  - The quarterly increment rests entirely on the modeled LDV-based behavior and identification assumptions noted above.
- **Non-OBD trucks were modeled with *no NOx benefit* from periodic testing.**
  - CARB explicitly assumed **zero NOx benefit for non-OBD vehicles**, yet still modeled semi-annual testing for them. That undermines any frequency-based NOx justification for the oldest part of the fleet.
- **Pilot evidence does not validate cadence.**
  - CARB's pilot/technical appendix finds OBD testing more comprehensive than opacity testing but acknowledges **limited datasets** that "made it difficult to form strong conclusions" about relationships; it does not compare annual vs semi-annual vs quarterly outcomes in HD fleets.
- **Costs rise steeply as cadence increases, and key costs were excluded.**
  - CARB estimates **2023–2050 direct costs** of **$4.12B** for the semi-annual proposal, versus **$5.09B** under the quarterly alternative—**~$0.97B more** for the added frequency.

    - CARB's base analysis **omits downtime/opportunity costs**, only adding them in a sensitivity (+$470M over the period).
    - Pushing to quarterly magnifies precisely the classes of cost CARB down-weights.
- **Program design already adds targeted screening without quarterly.**
    - Early PEAQS/RSD screening provided **~6.4 tpd statewide NOx reductions in 2023** and is assumed to expand to improve identification rates.
    - This supports **targeted high-emitter screening** as the marginal tool, not blanket quarterly testing.
- **Conclusion:**
- CARB has not produced heavy-duty field evidence that quarterly testing is necessary or proportionate. Its own modeling shows **diminishing returns** from semi-annual to quarterly, relies on **light-duty analogues**, assumes **no NOx benefit for non-OBD**, and **raises costs sharply**.

3) CARB cost assumptions are implausible; true costs are far higher

- **De-minimis per-vehicle OBD cost ($2.87/yr) is a modeling artifact.**
    - CARB's Appendix F assumes fleets use in-house devices or telematics so periodic OBD testing takes **2.5 minutes per test** and costs **$2.87 per vehicle per year** for many fleets; larger fleets are modeled at **$24/vehicle/year**. These inputs drive unrealistically low statewide totals.
- **Market pricing contradicts CARB's per-test assumptions.**
    - Credentialed tester pricing commonly falls around **$149–$199 per OBD test**; some shops advertise $150 and $189.99, with occasional promos lower.
    - At two tests/year (2025–26) that is **$300–$400 per truck per year**, and at four tests/year (from 2027 for OBD trucks) **$600–$800** before downtime.
- **Downtime was excluded from base costs.**
    - CARB explicitly **did not include** business opportunity costs in its primary totals, adding them only in a sensitivity case that totals **$469.7M** (2023–2050) using a **$90.68/hour** downtime rate from a 2015 source.
    - Modern trucking marginal cost per hour is higher (e.g., **$91.27/hour** in 2023, per ATRI). The omission understates actual burden.
- **Telematics "escape hatch" was not available at scale.**
    - CARB's low costs rely on **CC-ROBD telematics** submission to avoid shop visits. Yet **as of July–Sept 2024, only one telematics provider (Zonar)** was certified.
    - Limited vendor choice and rollout contradict the assumption of frictionless, low-cost telematics across fleets.
    - Typical fleet-telematics subscriptions run **$15–$50 per vehicle per month** industry-wide, far above CARB's **$24 per vehicle per year** OBD cost premise.
- **Device economics don't match deployment reality.**
    - CARB assigns token **one-time device costs** of **$400–$800 per fleet** for non-continuously connected devices and **$0** for large fleets presumed to use telematics.

    - But CARB's own docs note **CC-ROBD devices are dedicated to a single truck**, so real per-vehicle hardware and subscription costs accrue when using telematics.
- **CARB's own totals show big cost jumps with higher cadence.**
    - Direct costs under the semi-annual program are **$4.12B** (2023–2050).
    - The **quarterly** alternative rises to **$5.09B**—**~$0.97B more**—before realistic downtime, travel, queueing, and admin overhead.
- **Example impact (conservative):**
    - 40-truck OBD fleet in 2027. Tests: 4/year. Market price: **$149/test → $23,840/yr** direct fees.
    - If each event causes **2 hours** of out-of-service time (travel, wait, test, admin) at **~$91/hr**, downtime adds **$29,120/yr**.
    - Total ≈ **$52,960/yr**, excluding retests, NSTs, or portal/admin labor.
    - Scale this across thousands of fleets.
- **Conclusion:**
- CARB's cost model is not credible. It assumes per-vehicle OBD testing costs near zero and ignores real downtime. Market data and CARB's own appendices show materially higher, recurring costs.

4) Implementation defects and due-process risk

- **Rolling surprise obligations (NST after a clean test).**
    - CARB states that **even if a vehicle passes** its emissions compliance test, it **may still be flagged between intervals** as a potential high emitter and the owner must submit a new passing test **within 30 days** of the Notice to Submit to Testing (NST).
    - This creates stacked, unscheduled testing on top of periodic deadlines.
- **Compressed 30-day cure window.**
    - The 30-day NST clock runs **calendar days**, not business days, which is tight for arranging an appointment, repairs, and retest—especially for rural fleets or during peak seasons.
    - CARB offers no routine grace period in the rule text or FAQs.
- **Registration-hold machinery for admin misses.**
    - CARB's own materials confirm **DMV registration holds** for failures in reporting, fee payment, or test submission.
    - Holds are triggered by **administrative** defects as well as emissions failures, and resolving a hold can still take **1–5 business days** to propagate—during which the truck can't be legally operated.
- **Process traps in documentation and payment.**
    - CARB warns that **payments made outside the CTC-VIS system do not count**, exposing owners to holds even if they believed they paid correctly through another channel.
    - That is a classic procedural trap for small operators and out-of-state carriers unfamiliar with the portal.
- **Portal dependence without safe-harbor.**

    - Compliance, certificates, and DMV status updates hinge on the **CTC-VIS** portal.
    - CARB directs owners to email help if they encounter issues, but there is **no automatic safe-harbor** for portal errors or latency.
    - A purely online dependency with holds tied to portal status raises avoidable due-process risk.
- **Duplicative burdens from overlapping triggers.**
    - A fleet can be simultaneously facing:
- a periodic deadline,
- an NST 30-day clock
- a DMV hold propagation lag, even when emissions are fixed.
    - The program architecture stacks timing risks that are **not linked to actual excess emissions**.

5) Ignoring Supply Chain and Feasibility Concerns.

- Since 2010, heavy-duty diesels are equipped with onboard diagnostics and engine derate features – meaning if an emission control like the diesel particulate filter (DPF) is malfunctioning, the truck will typically limit its power or speed to compel a fix.
- Fleet owners thus already have a strong incentive to promptly repair emission issues to keep their trucks running.
- No study has been cited by CARB demonstrating that quarterly testing yields meaningfully better outcomes than, say, annual testing, especially given the self-policing nature of newer engine technology.

6) Targeting Minor Emissions Issues vs. Major Offenders:

- **There is scant evidence that forcing every truck through frequent tests is necessary** when the worst violators can be identified by smarter, targeted methods.
- The **pilot program** showed that when a small sample of trucks underwent diagnostic screening and repair, huge NOx reductions (50-75%) were achieved on those particular trucks.
- This suggests the problem lies with **certain malfunctioning vehicles**, not the entire fleet at large.
- A broad-brush program may expend enormous effort herding thousands of compliant trucks through paperwork, just to catch the few that actually need repairs.

7) Questionable Efficacy of Quarterly Testing:

- The step to require **quarterly testing for newer (OBD-equipped) trucks by 2027** is especially dubious.

- A truck that develops an emissions fault will trigger its "Check Engine" light and usually derate performance well before the next quarter is up, prompting voluntary repair.
- The chance that a vehicle would only discover a problem via a state-mandated test (and that this problem would meaningfully pollute in the interim) is relatively low on a 90-day timescale.
- CARB has not cited real-world evidence that quarterly inspections yield significantly cleaner outcomes than annual or semi-annual checks.

Rebutting common pro-CTC claims with the record

- **"Quarterly is essential."**

  CARB relies on modeled "sawtooth" effects and assumed detection/repair rates. No HD on-road field study shows quarterly yields proportionate, durable gains over **annual + targeted screening**. The modest **13 tpd** modeled delta in 2027 must be compared to the massive statewide testing expansion and downtime.

- **"Costs are minimal."**

  CARB's own FSOR admits increased owner costs and projects device prices and telematics options that were **not** broadly available. Market prices show **$150–$199 per OBD test** today, not **$2.87**. Downtime was **excluded** from base costs.

- **"We need out-of-state coverage."**

  EPA's proposed partial disapproval signals Clean Truck Check **cannot** lawfully bind non-California vehicles via SIP as designed. Proceeding now risks a program collapse or split enforcement.

- **"Telematics eliminates burden."**

  As of mid-2024 only **one** CC-ROBD telematics provider was certified (Zonar). Others were still "working to register." One-vendor dependence is not broad relief.

- **"NSTs are fair and predictable."**

  An **NST** can arrive **between** periodic tests and gives **30 calendar days** to produce a pass. That stacks surprise obligations even after a recent pass.

- **"DMV holds only hit gross emitters."**

  CARB's own fact sheet shows **registration holds** for reporting/fee misses and portal issues, with **propagation delays** before release. That is punitive for admin errors.

- **“Opacity checks control NOx on older diesels.”**

  Opacity targets **PM**, not NOx. CARB’s ISOR reports **none** of the OBD-MIL trucks in a field study failed opacity. Opacity is a poor NOx screen.

- **“Quarterly is essential.”**

  CARB relies on **modeled** benefits; no HD on-road field study shows quarterly beats **annual + targeted screening** in real fleets. CARB already uses PEAQS/RSD to find outliers.

- **“Costs are minimal.”**

  CARB’s Appendix F assumes **2.5 min/test** and **$2.87/vehicle-year** for many OBD tests or **$24/vehicle-year** via telematics, which understates market reality and downtime.

- **“Testing time is trivial.”**

  CARB’s own cost model counts just **5 minutes/year** for two OBD tests and scales to **10 minutes/year** if quarterly, ignoring travel, queues, and out-of-service impacts.

- **“Out-of-state coverage is needed and lawful.”**

  EPA proposes to **disapprove** the SIP **for out-of-state/out-of-country vehicles**. Proceeding invites litigation and split enforcement that disadvantages CA-registered fleets.

- **“CTC is even-handed.”**

  Enforcement leverage is a **CA DMV hold**, which does not exist for non-CA plates. That creates unequal risk for in-state fleets.

- **“Periodic testing beats targeting.”**

  Remote-sensing literature shows a **small share of vehicles** produce a **large share of NOx**; high-throughput screening can identify them for repair without quarterly testing of everyone.

- **“Non-OBD requirements are justified.”**

  CARB’s pilot/ISOR acknowledge the need to go **beyond opacity** because it misses many malfunctions; yet non-OBD trucks are still pushed into semi-annual opacity/visual checks.

- **“Capacity is ready statewide.”**

CARB depends on **credentialed testers** or a single CC-ROBD vendor today; that's fragile and not proven at quarterly scale.

- **"Periodic alone ensures urban NOx control."**

  Real-world data show **urban, low-speed** NOx spikes from HD diesels; periodic cadence does not guarantee capture, while corridor screening does.

- **"CTC aligns with federal plan and won't change."**

  The **proposed partial SIP disapproval** signals regulatory instability; building policy on contested coverage is risky for fleets and agencies.

- **"There's no cheaper way."**

  CARB already operates **PEAQS/RSD + NST**. Scaling that and setting **annual baseline** testing meets the goal at lower cost and less downtime.
