Title

Designing Mexico's NOM-163 Phase 3 to Achieve National Emission Goals: Remove Technology Credits, Phase-out Multipliers, and Lower Manufacturer's CO_2-Emission Targets

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POLICY BRIEF **July 2026**

Designing Mexico's NOM-163 Phase 3 to Achieve National Emission Goals: Remove Technology Credits, Phase-out Multipliers, and Lower Manufacturer's CO_2-Emission Targets

Anya Robinson, Francisco Parés Olguín, Roland Hwang, and Aditya Ramji

Context

Greenhouse gas emissions regulations for light-duty vehicles (LDVs) have been increasingly recognized not only as environmental regulation but as industrial policy—shaping auto manufacturer investment, accelerating electrification, and strengthening domestic competitiveness in the global shift toward zero-emission vehicles (ZEVs). Mexico's revision of NOM-163 presents an opportunity to design a regulation that advances both objectives simultaneously.

Phase 3 of Mexico's CO_2 regulation for LDVs (NOM-163) is currently being revised for model year (MY) 2028 and later. This policy brief presents findings from modeling conducted by the Global South Centre at the Institute of Transportation Studies and provides recommendations for best practice regulatory design. This study focused on three key design features in the regulation:

- multipliers for highly efficient vehicles;
- technology credits including off-cycle and air conditioning (AC);
- fleet-average headline CO_2 targets (the CO_2 emissions standard that manufacturers must meet).

While the current regulatory design aims for an average CO_2 target of 89 gCO_2/km for passenger cars and 131 gCO_2/km for light trucks (for MY 2027), Phase 2 of NOM-163 provides some of the most generous multiplier and technology credits of any regulation currently implemented globally.[1]

The aims of this study are as follows:

- To determine the regulatory design (headline industry average target stringency, multiplier, and technology credits) scenario that achieves Mexico's electrification goals.
- To determine how these designs affect ZEV credit trading and potential revenue generation for OEMs.

A well-functioning credit market is critical to ensuring the success of ambitious standards as it incentivizes auto manufacturers to produce and supply ZEVs. The second aim in this study addresses this need.

Methods

A back-solving model was implemented to determine how different regulatory designs impact electrification levels, with the aim of finding a regulatory design scenario that would require the industry to meet 30% ZEV sales by 2030 and 65% sales by 2035. This approach

[1] Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT). (2024, January 3). *Norma Oficial Mexicana NOM-163-SEMARNAT-SCFI-2023, emisiones de bióxido de carbono (CO_2) provenientes del escape, aplicable a vehículos automotores nuevos de peso bruto vehicular de hasta 3,857 kilogramos*. Diario Oficial de la Federación. https://www.dof.gob.mx/nota_detalle.php?codigo=5713555&fecha=03/01/2024

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used vehicles sales projections by segment for Mexico and determined the highest feasible industry wide ZEV percentage for each regulated year, assuming the industry was in compliance with the standard. Using the Mexico sales projections, eight regulatory design scenarios were modeled at the industry level to assess the ZEV market share required to meet them for MY 2028–2035 (Table 1).

Table 1. *Regulatory Design Scenarios*

Scenario	Description
Baseline	Assumes same regulatory design as Phase 2 NOM-163 MY 2027
Baseline without Technology Credits	Assumes same regulatory design as Phase 2 NOM-163 MY 2027 but with removal of technology credits
Baseline without Multipliers	Assumes same regulatory design as Phase 2 NOM-163 MY 2027 but with removal of multipliers
Baseline without any Flexibilities	Assumes same headline target as Phase 2 but no multipliers or technology credits
Flexibility Phase-Out 1	Assumes same headline target as Phase 2 but multipliers and technology credit schedules have been altered
Flexibility Phase-Out 2	Assumes same headline target as Phase 2 but multipliers and technology credit schedules have been altered
Target Reduction and Flexibility Phase-out 1	Assumes same design as "Flexibility Phase-Out 1" but headline target has been altered
Target Reduction and Flexibility Phase-out 2	Assumes same design as "Flexibility Phase-Out 2" but headline target has been altered

(Refer to the full report for more details on scenarios)

For each scenario, we assumed that hybrid electric vehicle (HEV) proportions will account for 20% of all new internal combustion engine vehicle (ICEV) sales. Additionally, a 3% year-on-year reduction in ICEV CO_2 emissions was modeled for MY 2028-2033, then a 1% reduction from MY 2034-2035 to represent potential technological efficiency improvements in gasoline vehicles. A 1% reduction in PHEV CO_2 emissions was also modeled across all years. The all-electric Mexico auto manufacturer, Olinia, was included in the analysis even though they have sold no vehicles yet. Olinia sales projections start at 10,800 in MY 2028 and increase to 33,404 in MY 2035. We used these values in the high sales scenario.

To determine the level of revenue generation from each of the most feasible scenarios proposed in stage one of this analysis, vehicle sales projections were combined with manufacturer-level baseline vehicle model sales data from MY 2025 and with manufacturer publicly announced ZEV future sales commitments. These three datasets provided sufficient information to project sales for each OEM for MY 2028-2030 at the segment level (passenger cars and light trucks), broken down by fuel type (BEVs, PHEVs, HEVs, and ICEVs). These combined data provide sufficient detail to run compliance calculations to determine industry wide revenue generation from credit trading. See model assumptions on page 6 of this brief.

Key findings

Industry-level modeling

Under the existing Phase 2 NOM-163 MY 2027 headline targets, complete removal of multipliers and technology credits could require auto manufacturers to sell approximately 30% ZEVs by MY 2030 but would not require manufacturers to achieve Mexico's 2035 electrification target (Figure 1). Flexibility mechanisms disincentivize manufacturers to increase ZEV supply.

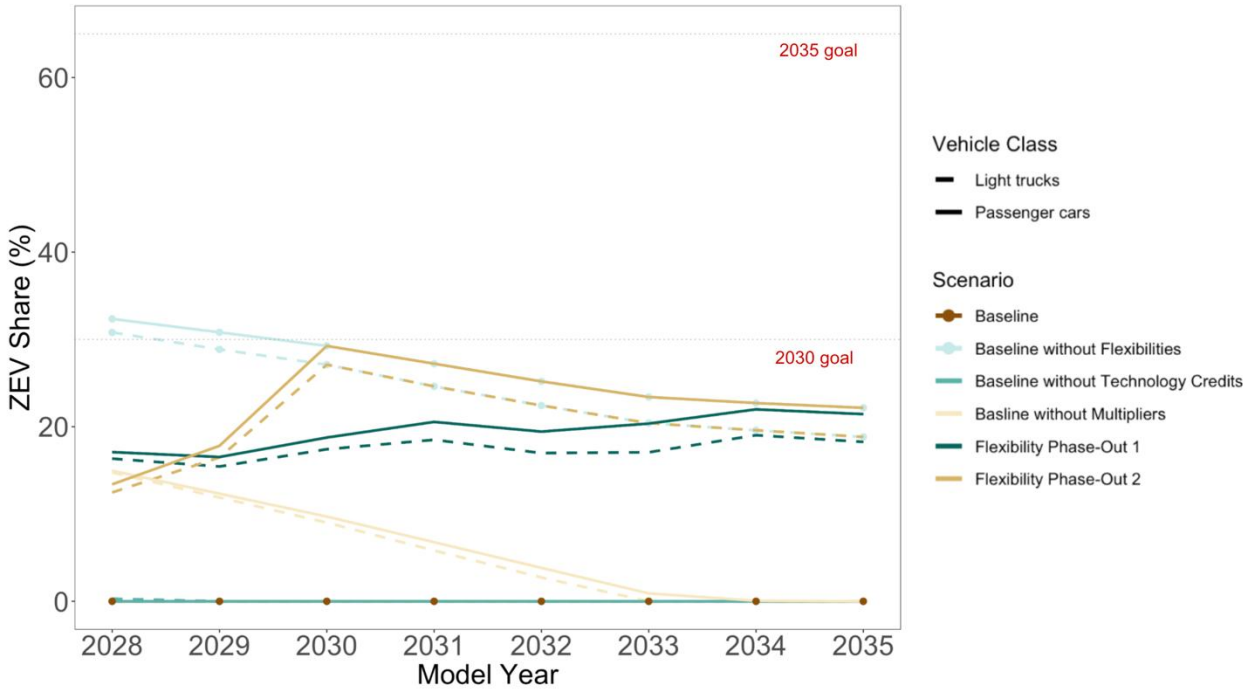

Figure 1: Industry-required ZEV sales share under different regulatory design scenarios for MY 2028 to MY 2035 (no headline target change).

Three policy changes emerge as critical for Phase 3 of NOM-163 to achieve Mexico's 2030 and 2035 electrification goals:

- First, multipliers should be rapidly phased out for all vehicle technologies no later than MY 2030.
- Second, off-cycle technology credits should be eliminated or substantially reduced at the start of Phase 3 to prevent continued reliance on compliance pathways that do not drive vehicle electrification.
- Third, headline fleet-average CO_2 targets must be reduced beyond MY 2030 to increase electrification above 30%. Achieving Mexico's 2035 electrification goal of 65% ZEV sales would require reductions in fleet-average CO_2 targets of approximately 50–57% relative to Phase 2 MY 2027 levels (Figure 2).

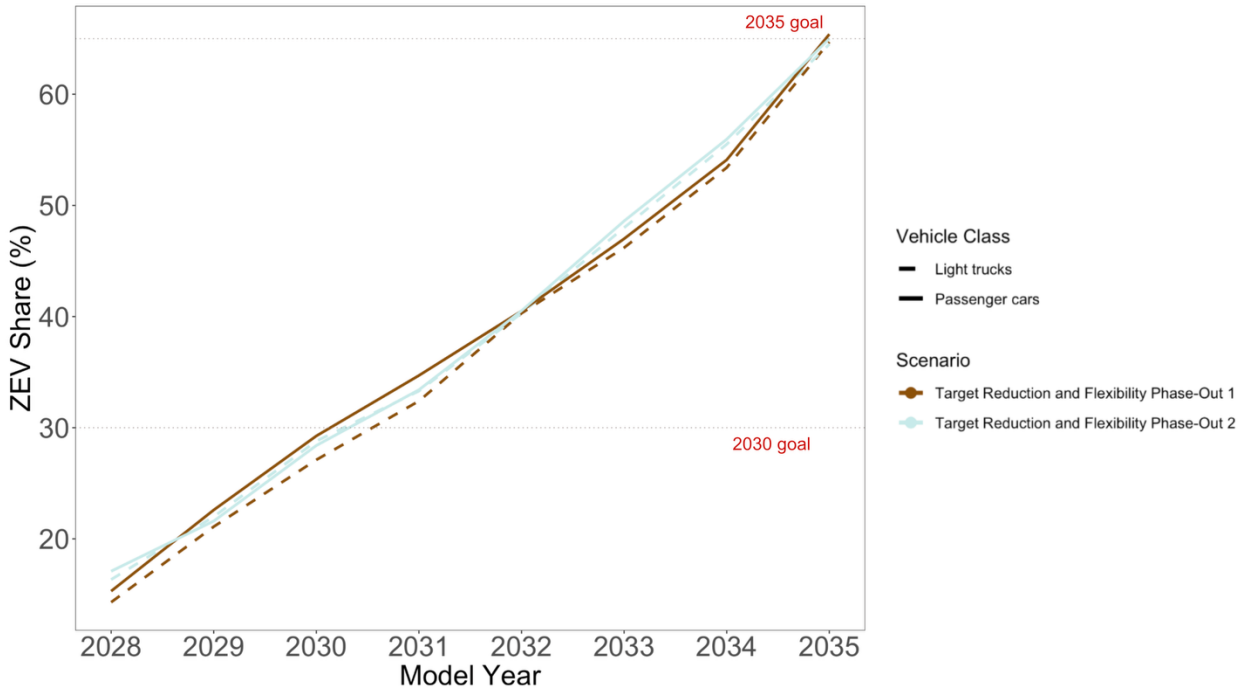

Figure 2: Industry-required ZEV sales share under different regulatory design scenarios for MY 2028 to MY 2035 (headline target change).

Revenue generation estimates

Table 2 presents potential industry and government revenue across two feasible scenarios: "Flexibility Phase-Out 2" and "Target Reduction and Flexibility Phase-Out 1." (Target Reduction and Flexibility Phase-Out 2 is omitted, as it requires no headline target reduction in the first three years and is therefore functionally equivalent to Flexibility Phase-Out 2.) Each of these two scenarios was combined with one of three scenarios for different levels of ZEV commitment from industry. The high ZEV scenario has manufacturers meet commitments on time, the medium ZEV scenario has them meet commitments 5 years late, and the low ZEV scenario, 10 years late.

Table 2. *Cumulative three-year (MY 2028 to MY 2030) revenue generation (millions of USD*) under ZEV commitment scenarios*

ZEV commitment scenario	Flex Phase-Out 2		Flex Phase-Out 1 + Target Reduction	
	Industry	Gov	Industry	Gov
Low (+10 years)	464	1,256	427	1,832
Medium (+5 years)	170	318	123	723
High (+0 years)	149	0	185	0

*Assumes USD 40 trading price per tCO2 for industry and USD 50 per tCO2 for government penalty. Cells shaded dark green indicate higher three-year cumulative revenue. Cells shaded dark red indicate higher three-year penalty payments to government.

The analysis shows:

- Credit demand holds across both scenarios: Revenue generation is higher under the "Flexibility Phase-Out 2" scenario for a Low and Medium ZEV Commitment scenario, but is higher under the "Flexibility Phase-Out 1 and Target Reduction" Scenario in a High ZEV Commitment scenario.

- In the Low and Medium ZEV Commitment scenarios, under-complying manufacturers pay substantial penalties to government, signaling that credit demand outpaces supply. In this "seller's market," over-complying manufacturers can sell excess credits near the penalty price.
- Under the High ZEV Commitment scenario, no penalties are paid and supply of credits is higher than demand. This over-supply of credits will likely drive down potential trading prices per tCO_2, and it points to the importance of a regulatory design that is appropriately stringent for the anticipated electrification levels of the market.

Table 3 shows the amount of revenue that an manufacturer may expect to generate from the sale of one new BEV based on vehicle size and segment under the Phase 2 NOM-163 MY 2027 standard ("Baseline" scenario). Revenue generation is dependent on the difference in total magnitude between the target emissions for that vehicle (which is based on vehicle footprint size) and the actual emissions of the vehicle. For BEVs, actual emissions are counted as 0 gCO_2/km. Therefore, if the headline target is reduced to meet 2035 electrification goals, fewer credits will be generated from the sale of the same vehicle. Under a target reduction design, credit-selling manufacturers can expect higher revenue from a single BEV in early years with the volume of credits generated from a single BEV diminishing over time.

Table 3. *Example of potential BEV revenue generation (USD) from credit trading per vehicle*

Vehicle size	Footprint (m2)	Target (g/km)	$35	$40	$45
Small car	3.52	85	737	842	948
Medium car	4.01	92.44	802	916	1,031
Large car	4.7	108.02	937	1,071	1,204
Small SUV	3.98	108.31	939	1,073	1,208
Large SUV	5.06	135.49	1,175	1,343	1,511

Policy Implications

Our analysis has three key policy implications for the design of the NOM-163 Phase 3:

- First, to meet 2030 electrification targets, multipliers for BEVs and PHEVs should be progressively phased out within the first three model years of Phase 3 of the regulation. HEV multipliers should not be included in the new regulatory design.
- Second, technology credits should be eliminated before the commencement of Phase 3 or substantially reduced then phased down across MYs.
- Third, reducing the headline target is essential in achieving electrification levels above 30%. To meet Mexico's 65% ZEV sales goal by 2035, the Phase 2 NOM-163 headline targets need to be reduced by between 50-57%. A reduction of this magnitude would achieve an average of 50 gCO2/km for light trucks and 39 gCO2/km for passenger cars by MY 2035.
- The more stringent the design of the standard, the greater the demand for ZEV credits, likely resulting in higher credit prices. The total revenue from credit sales is dependent on the balance between the supply and demand and the total magnitude of credits.
- Under the baseline headline target, sellers of ZEV credits could earn between $737 and $1,511 per vehicle depending on the size of the vehicle and credit price.

Modelling assumptions:

- No manufacturer credit carry-over from Phase 1 and 2 of NOM 163 regulations. Each manufacturer starts with zero credits in MY 2028.
- Industry-level ZEV sales percentages assume the industry as a whole is in compliance with the standard and chooses not to pay non-compliance penalties instead.
- Manufacturer-level modeling assumes each OEM meets their publicly announced ZEV sales commitments five years after the target date under the medium scenario and 10 years late under the low scenario.
- Per year total industry revenue generation from trading credits based on a credit price of US$40 per lifetime tCO2. The penalty price is US$50 per lifetime tCO2, therefore any number under US$50 for credit trading price is plausible.

For further details, refer to our full report or email Anya Robinson at anrobinson@ucdavis.edu for further information.