Online Appendix

Political Connection and Firm Nationality in Climate Rulemaking

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Appendix

A Coding of Firm Requests and Agency Decisions

A.1 Coding Procedure

I code each request that a firm made on one provision of a rule, paired with the agency's decision on it. I use OpenAI's GPT-4o at a temperature of zero to limit variation across runs, and the model returns its answers in a fixed JSON format. For each decision, the model quotes the sentence of the agency's response. I drop records whose quotation does not appear in the response text after normalizing case, whitespace, and punctuation.

Seven of the eight rules have a separate response-to-comments (RTC) document, which the agency publishes with the final rule. The RTC document groups the comments by topic into numbered sections. Within each section, the agency presents the significant comments as excerpts or summaries, labeled with the commenter's name or the document number of the comment, and then responds to them. Figure A1 shows an example from Heavy-duty Phase 2, an excerpt from Volvo's comment and the agency's response to it. From each response and the comments above it, the model records the request of each commenter named, its position on the proposal, and the agency's decision.

In the Multi-pollutant MY2027 and Heavy-duty Phase 3 documents, each section lists the firms' excerpts first and then responds in a series of summary and response pairs. The model codes each pair as a comment and its response. I also match each firm's excerpt to the relevant pairs, using the firm names in the summaries and, when no summary names the firm, the text of the excerpt. In four other documents, the agency often quotes excerpts from several firms before a single response. I match each firm's excerpt to that response and code the pair separately. In every document, the model reads up to 14,000 characters of the comments and 8,000 characters of the response.

The SAFE rule has no separate RTC document, and the agency responds to comments in the preamble to the final rule. For this rule, the model first lists the requests in each firm's comment, with the firm's position on each. I then split the preamble into passages of about 1,500 characters, each sharing 200 characters with the next. For each request, I use OpenAI's text-embedding-3-small to find the eight passages most similar in meaning to the request, and GPT-4o codes the agency's decision from these passages.

A.2 Example Documents

(a) Comment

Organization: Volvo Group

Heavy Haul Tractor Subcategory

Volvo Group supports the agencies' proposal to provide for a heavy haul tractor regulatory subcategory; however, and in support of the EMA comments, Volvo Group proposes a gross combination weight rating of greater than or equal to 120,000 lbs. and a total gear reduction at or above 53:1. In addition, Volvo Group has concerns regarding the drive cycle weighting for the heavy haul subcategory (19% transient, 17% 55 mph, and 64% 65 mph cycles). [EPA-HQ-OAR-2014-0827-1290-A1 p.45]

(b) Agency response

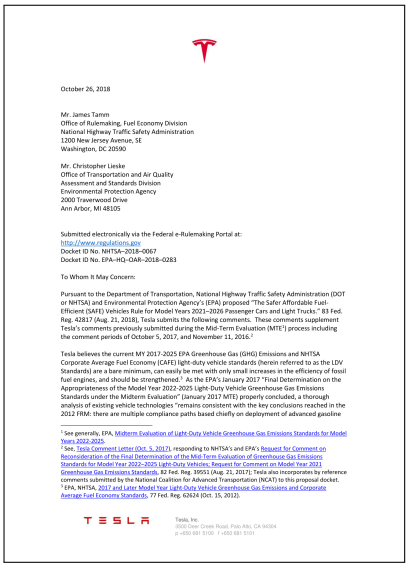
Response:

EPA and NHTSA are revising the heavy-haul tractor provisions to better assure that vehicles are regulated in an appropriate subcategory. Based on our assessment, the tractors with GCWR greater than or equal to 120,000 pounds truly represent heavy-haul applications in the U.S. Therefore, we are adopting criteria only based on GCWR, not the proposed RBM or total gear reduction ratios. With these Phase 2 changes to the proposed heavy-haul tractor definition, all tractors that would have been considered as Special Purpose Tractors in Phase 1 due to the GCWR criteria listed in EPA's 40 CFR 1037.630 and NHTSA's regulation at 49 CFR 523.2 will now qualify as heavy-haul tractors in Phase 2. Therefore, we no longer believe that it is necessary for heavy-haul tractors to be treated as Special Purpose Tractors. See generally Section III.C.5 of the Preamble for additional discussion.

Figure A1. A request and its disposition in an RTC document

Notes: Heavy-duty Phase 2 RTC (EPA-HQ-OAR-2014-0827-2344, p. 860). Volvo asked the agency to define a heavy-haul tractor as one with a gross combination weight of at least 120,000 pounds and a total gear reduction of at least 53:1. The final rule adopted the weight condition but not the gear reduction condition, and the request is coded as partial and enters the analysis as not granted.

(a) Comment



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Docket ID No. EPA–HQ–OAR–2018–0283

To Whom It May Concern:

Pursuant to the Department of Transportation, National Highway Traffic Safety Administration (DOT or NHTSA) and Environmental Protection Agency's (EPA) proposed "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks." 83 Fed. Reg. 42817 (Aug. 21, 2018), Tesla submits the following comments. These comments supplement Tesla's comments previously submitted during the Mid-Term Evaluation (MTE[1]) process including the comment periods of October 5, 2017, and November 11, 2016.[2]

Tesla believes the current MY 2017-2025 EPA Greenhouse Gas (GHG) Emissions and NHTSA Corporate Average Fuel Economy (CAFE) light-duty vehicle standards (herein referred to as the LDV Standards) are a bare minimum, can easily be met with only small increases in the efficiency of fossil fuel engines, and should be strengthened.[3] As the EPA's January 2017 "Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation" (January 2017 MTE) properly concluded, a thorough analysis of existing vehicle technologies "remains consistent with the key conclusions reached in the 2012 FRM: there are multiple compliance paths based chiefly on deployment of advanced gasoline

[1] See generally, EPA, Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025.
[2] See, Tesla Comment Letter (Oct. 5, 2017), responding to NHTSA's and EPA's Request for Comment on Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles; Request for Comment on Model Year 2021 Greenhouse Gas Emissions Standards, 82 Fed. Reg. 39551 (Aug. 21, 2017); Tesla also incorporates by reference comments submitted by the National Coalition for Advanced Transportation (NCAT) to this proposal docket.
[3] EPA, NHTSA, 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62624 (Oct. 15, 2012).

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(b) Final rule preamble

In light of available statutory discretion and the range of factors that the statute authorizes and permits the Administrator to consider, and his consideration of the factors discussed above, the EPA concludes that reducing the stringency of the MY 2021–2026 standards is an appropriate approach under section 202(a). Therefore, based on the data and analysis detailed in this final rule, the Administrator concludes that the previous MY 2021 and later CO_2 standards are too stringent, and is establishing revised standards for MY 2021 through MY 2026 at a level of 1.5 percent per year improvement in stringency.

Figure A2. A request and its disposition in a final rule preamble

Notes: Tesla's comment on the SAFE proposal (EPA-HQ-OAR-2018-0283-4186, p. 1) and the final SAFE rule preamble (85 FR 25120). Tesla asked the agency to strengthen the MY2017–25 standards. In the final rule, the agency concluded that reducing the stringency of the MY2021–26 standards was appropriate, and the request is coded as denied.

A.3 Prompts

Prompt 1. Coding requests and decisions in RTC documents

```
You extract who-won records from one EPA rulemaking Response-to-Comments unit.
Input: a COMMENT block (one or more organizations commented on a topic) and EPA's RESPONSE block.

For EACH distinct commenting organization named in the COMMENT, output one record:
- organization: name exactly as written
- ask: one sentence, what the organization wanted EPA to do
- position: "support" (backs EPA's proposal) | "oppose" (against it) | "modify" (wants a change)
- disposition - judge RELATIVE TO THE ORGANIZATION'S ASK, not EPA's tone:
    "granted"  = EPA's final action gives the org what it asked (adopts the requested change, or
    ↪  finalizes what it supported)
    "denied"   = EPA's final action goes against the ask (declines the change, or finalizes what it
    ↪  opposed)
    "partial"  = EPA adopts part of the ask or a middle ground (agrees on some points, not others)
    "deferred_to_final" = EPA does not decide here; says it is addressed in the final rule or
    ↪  another section
    "not_addressed" = the RESPONSE does not engage this org's point
- evidence_comment: a VERBATIM sentence copied from the COMMENT showing the ask
- evidence_response: a VERBATIM sentence copied from the RESPONSE showing the disposition (set ""
↪  if not_addressed)
- confidence: "high" | "medium" | "low"

HOW TO JUDGE disposition (do this in order):
(a) Identify the DIRECTION the org wants (e.g., higher vs lower volumes, broader vs narrower
↪  definition, adopt vs reject a provision).
(b) Identify the DIRECTION of EPA's final action in the RESPONSE.
(c) same direction = granted; opposite = denied; mixed = partial.
IMPORTANT: an org that SUPPORTS a proposal and EPA finalizes it = granted (not denied). An org that
↪  asked EPA to LOWER something and EPA lowers it = granted.
"not_addressed" is ONLY for when the RESPONSE is genuinely silent on the topic. If EPA answers the
↪  topic collectively (e.g. "some commenters", "we disagree with commenters that..."), ATTRIBUTE
↪  that collective disposition to each org whose position is on that topic - do NOT use
↪  not_addressed just because the org is not named by name in the response.
MULTIPLE REQUESTS: if one organization makes MORE THAN ONE request, check EPA's action on EACH
↪  before deciding. If EPA grants some and denies/declines others, the disposition is "partial"
↪  (do not report only the granted part or only the denied part).

Quotes MUST be exact substrings copied from the text. Do not paraphrase or invent.

Examples (ask -> response -> disposition):
1) Org asked EPA to update the baseline fleet with new data. RESPONSE: "the baseline fleet was not
↪  updated to reflect the new information" -> denied.
2) Org (supports lowering) asked EPA to lower the 2016 volumes. RESPONSE: "we are reducing the
↪  volume requirements for advanced biofuel in this action to levels that are reasonably
↪  attainable" -> granted (EPA lowered, which is what the org wanted).
3) Org said a proposed definition is too broad. RESPONSE: "We disagree that the proposed definition
↪  is too broad... Also, we agree with the comment that joint and several liability..." ->
↪  partial.
```

```
4) Org wanted volumes set one year at a time. RESPONSE: "A discussion of our decision to
↪  finalize... can be found in Preamble Section II.D, and comments on this topic are discussed in
↪  RTC Section 6.2.3" -> deferred_to_final.
5) Org made two requests: (a) extend the small-business exemption to foreign firms AND (b) use a
↪  sales-volume threshold instead of the SBA criterion. RESPONSE: "both foreign and US
↪  manufacturers meeting the SBA size criterion can be exempt" (grants a) "...EPA will maintain
↪  the SBA size criterion" (declines b) -> partial.

Output strictly JSON: {"records":[ ... ]}.
```

Prompt 2. Extracting requests from comments on the SAFE rule

```
You read a firm's public comment on a proposed EPA vehicle rule and list its substantive ASKS.
An ASK is a specific request about a rule provision. IGNORE procedural requests (comment-period
↪  extension,
hearing requests) and generic praise. For each ask return:
- provision: short topic label (e.g. "stringency of MY2021 CO2 standard", "off-cycle credit menu")
- position: "support" (backs EPA's proposal) | "oppose" (against it) | "modify" (wants a change)
- ask: one sentence, what the firm wants EPA to do.
Return ONLY JSON: {"asks":[{"provision":"..","position":"..","ask":".."}]}  (empty list if none
↪  substantive).
```

Prompt 3. Coding decisions from the SAFE final rule preamble

```
You are given a firm's ASK about an EPA vehicle-rule provision, and EXCERPTS from the EPA's FINAL
↪  rule preamble.
Judge the disposition RELATIVE TO THE FIRM'S ASK, not EPA's tone:
- "granted" = EPA's final action gives the firm what it asked (adopts the requested change, or
↪  finalizes what it supported)
- "denied" = EPA's final action goes against the ask (declines the change, or finalizes what it
↪  opposed)
- "partial" = EPA adopts part of the ask or a middle ground
- "deferred_to_final" = EPA does not decide here; addressed in another action/section
- "not_addressed" = the EXCERPTS are genuinely silent on this provision

HOW TO JUDGE disposition (do this in order):
(a) Identify the DIRECTION the firm wants (e.g., higher vs lower stringency, broader vs narrower,
↪  adopt vs reject).
(b) Identify the DIRECTION of EPA's final action in the EXCERPTS.
(c) same direction = granted; opposite = denied; mixed = partial.
IMPORTANT: a firm that SUPPORTS a proposal and EPA finalizes it = granted (not denied). A firm that
↪  asked EPA to LOWER something and EPA lowers it = granted. Use "not_addressed" ONLY when the
↪  EXCERPTS truly do not engage the provision.
If EPA states the comment is OUT OF SCOPE / not within the scope of this rulemaking, use
↪  "deferred_to_final" (not denied).

evidence_response: a VERBATIM sentence copied from the EXCERPTS showing EPA'S OWN final action or
↪  decision (not another commenter's statement). Exact substring; "" if not_addressed.

Examples (ask -> response -> disposition):
1) Firm asked EPA to update the baseline fleet with new data. RESPONSE: "the baseline fleet was not
↪  updated to reflect the new information" -> denied.
```

```
2) Firm (supports lowering) asked EPA to lower the volumes. RESPONSE: "we are reducing the volume
↪  requirements ... to levels that are reasonably attainable" -> granted (EPA lowered, which is
↪  what the firm wanted).
3) Firm said a proposed definition is too broad. RESPONSE: "We disagree that the proposed
↪  definition is too broad... Also, we agree with the comment that joint and several liability..."
↪  -> partial.
4) Firm wanted volumes set one year at a time. RESPONSE: "A discussion of our decision to
↪  finalize... can be found in Preamble Section II.D" -> deferred_to_final.
5) Firm made two requests: (a) extend the exemption to foreign firms AND (b) use a sales-volume
↪  threshold. RESPONSE: "both foreign and US manufacturers meeting the SBA size criterion can be
↪  exempt" (grants a) "...EPA will maintain the SBA size criterion" (declines b) -> partial.

Return ONLY JSON: {"disposition":"..","evidence_response":"..","confidence":"high|medium|low"}.
```

A.4 Validation

To assess how well the model's coding matches human judgment, I compare it with hand coding of two samples, one of the agency's decisions and one of the firms' positions. I coded both samples blind to the model's output.

Table A1. Human and model agreement on the coding

	Agency's decision					Firm's position		
		Five-category		Granted (binary)			Three-category	
Document	n	agree	κ	agree	κ	n	agree	κ
RTC	180	0.79	0.68	0.91	0.80	140	0.94	0.90
Preamble	88	0.95	0.92	0.95	0.91	20	0.70	0.55
Pooled	268	0.84	0.75	0.93	0.85	160	0.91	0.86

Notes: κ is Cohen's kappa. For the agency's decision, the RTC requests are drawn at random. Because few preamble requests are granted, they are drawn with equal numbers of granted and not-granted requests so that κ rests on enough cases in both categories. For the firm's position, each rule contributes 20 requests, drawn to include requests in all three positions.

Agreement on the firms' positions is lower on the SAFE rule. On the other rules, the model reads an excerpt or summary that the agency selected, which usually makes one point. On the SAFE rule, it reads each firm's full comment, which covers many provisions, and a firm's position on any one of them is harder to pin down. The lower agreement affects a small part of the data, since the SAFE rule accounts for 78 of the 2,176 requests in the analysis. The rule loosened the existing standards, and many firms supported the proposal. In the full data, requests that only support the proposal make up 44 percent of firm requests on the SAFE rule, compared with 19 percent on the other rules, and these requests are excluded from the analysis.

B Firms and Requests by Rule

Of the 341 firms that commented on at least one rule, 220 have at least one coded response (Table A2). The agency must respond only to significant comments, and it often answers several comments together without naming the commenters, so some firms' requests cannot be matched to a response. The gap is largest for Heavy-duty Phase 2, where 167 firms commented and 97 have a coded response. Many of these commenters were truck dealers and small trucking firms, which the response document answers without naming them.

Table A2. Firms and requests by rule

Rule	Docket	Firms that commented	Firms with a coded response	Firms in sample	Requests	Foreign share of requests
Light-duty MY2012–16	2009-0472	55	37	30	91	0.45
Heavy-duty Phase 1	2010-0162	36	34	33	313	0.44
Light-duty MY2017–25	2010-0799	61	47	38	238	0.67
Heavy-duty Phase 2	2014-0827	167	97	84	630	0.33
SAFE light-duty rollback	2018-0283	45	43	32	78	0.63
Light-duty MY2023–26 (revised)	2021-0208	26	24	22	121	0.54
Multi-pollutant MY2027 and later	2022-0829	71	52	48	371	0.54
Heavy-duty Phase 3	2022-0985	48	44	36	334	0.40
All rules		341	220	185	2,176	0.46

Notes: Docket numbers omit the EPA-HQ-OAR- prefix. Firms that commented are the firms on each rule's commenter list on Regulations.gov. Firms with a coded response are the firms for which the responses answer at least one request. Firms in sample have at least one request in the estimation sample, which excludes deferred and unaddressed requests. Each firm is counted once in the totals.

C Logit Estimates

In logit models that follow columns 1 to 3 of Table 2, the coefficient on Connected is positive and the coefficient on Foreign $\times$ Connected is negative, and both are statistically significant in all three columns (Table A3).

Table A3. Logit estimates

	(1)	(2)	(3)
Foreign	0.1816	0.1744	-0.0176
	(0.1575)	(0.2955)	(0.3466)
Connected	0.7719^{***}	0.7965^{***}	0.7139^{**}
	(0.2565)	(0.2850)	(0.3482)
Foreign × Connected	-1.1120^{***}	-0.9580^{**}	-1.0270^{**}
	(0.3568)	(0.4001)	(0.4334)
Districts	-0.0148^{***}	-0.0230^{***}	-0.0271^{***}
	(0.0031)	(0.0071)	(0.0068)
Foreign × Districts	0.0550^{**}	0.0622^{**}	0.0755^{***}
	(0.0266)	(0.0260)	(0.0250)
Vehicle maker	0.5076^{**}		
	(0.2436)		
Docket FE	Yes	Yes	
Industry FE		Yes	Yes
Docket × section FE			Yes
Observations	2,176	2,114	1,781
Firms	185	160	150

Notes: Logit models. Coefficients are in log odds. Standard errors, two-way clustered by firm and docket, in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

D Industry Fixed Effects at Different NAICS Levels

With four- and six-digit NAICS fixed effects in place of the three-digit fixed effects in column 2 of Table 2, the coefficient on Connected remains positive and the coefficient on Foreign × Connected remains negative, and both are statistically significant at every level (Table A4).

Table A4. Industry fixed effects at different NAICS levels

	(1)	(2)	(3)
Foreign	0.0204	0.0012	-0.0066
	(0.0328)	(0.0188)	(0.0241)
Connected	0.1142^{***}	0.1064^{**}	0.0949^{**}
	(0.0306)	(0.0357)	(0.0295)
Foreign × Connected	-0.1365^{**}	-0.1326^{**}	-0.1186^{**}
	(0.0429)	(0.0393)	(0.0369)
Districts	-0.0035^{***}	-0.0024	-0.0021
	(0.0009)	(0.0015)	(0.0013)
Foreign × Districts	0.0090^{**}	0.0077^{**}	0.0081^{***}
	(0.0037)	(0.0028)	(0.0022)
Docket FE	Yes	Yes	Yes
NAICS 3-digit FE	Yes		
NAICS 4-digit FE		Yes	
NAICS 6-digit FE			Yes
Observations	2,174	2,170	2,167
Firms	183	179	176

Notes: Linear probability models. Standard errors, two-way clustered by firm and docket, in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

E Section Fixed Effects at Different Levels

With second-level and lowest-level section fixed effects in place of the top-level section fixed effects in column 3 of Table 2, the coefficient on Foreign $\times$ Connected remains negative and statistically significant (Table A5).

Table A5. Section fixed effects at different levels of the response document

	(1)	(2)	(3)
Foreign	-0.0043	-0.0044	-0.0090
	(0.0377)	(0.0336)	(0.0384)
Connected	0.0978^{**}	0.0792^{*}	0.0739^{*}
	(0.0380)	(0.0348)	(0.0325)
Foreign $\times$ Connected	-0.1421^{**}	-0.1417^{***}	-0.1090^{**}
	(0.0419)	(0.0375)	(0.0358)
Districts	-0.0038^{***}	-0.0043^{**}	-0.0036^{**}
	(0.0009)	(0.0013)	(0.0013)
Foreign $\times$ Districts	0.0103^{**}	0.0109^{***}	0.0077^{**}
	(0.0036)	(0.0030)	(0.0032)
Industry FE	Yes	Yes	Yes
Docket $\times$ top-level section FE	Yes		
Docket $\times$ second-level section FE		Yes	
Docket $\times$ lowest-level section FE			Yes
Observations	2,149	2,010	2,065
Firms	181	179	178

Notes: Linear probability models. Standard errors, two-way clustered by firm and docket, in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.