

Overview of vehicle fuel efficiency and electrification policies in Indonesia

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This briefing reviews strategic documents and policies in Indonesia that are intended to promote fuel-efficient vehicles and electric vehicles (EVs). It evaluates their effectiveness to date, and suggests areas where additional government investment might accelerate emission reductions and decarbonization of the vehicle fleet, which is currently at a very early stage. This overview examines two- and three-wheelers, and four-wheelers, and reviews critical policy features including aspirational targets, fiscal policies, national-level labeling policies, and sub-national actions.

BACKGROUND

Indonesia is an emerging and fast-growing market for motor vehicles. In 2019, it was the 11th largest vehicle market globally,¹ and the largest vehicle market in the Association of Southeast Asian Nations (ASEAN) region,² characteristics which have led several automotive manufacturers to set up manufacturing plants in the country. But the country's vehicle fleet is relatively carbon-intensive: the fleet-average fuel efficiency of light-duty vehicles in Indonesia is lower than in most larger markets, including those of Japan, Europe, China, and India.

Average fuel consumption of light duty vehicles (LDV) in Indonesia, at 7.9 liters per gasoline equivalent (Lge) per 100 kilometer,³ has changed little over the past decade. Figure 1 charts average fuel consumption in various markets using the Worldwide

- 1 OICA, "World Motor Vehicle Production 2019," <https://www.oica.net/category/production-statistics/2019-statistics/> accessed 20 December 2020.
- 2 ASEAN Member countries are: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam.
- 3 Global Fuel Economy Initiative, "Fuel Economy in Major Car Markets: Technology and Policy Drivers 2005 – 2017," <https://www.globalfueleconomy.org/media/708177/gfei-wp19.pdf>.

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Harmonized Light Vehicles Test Procedure (WLTP) for LDVs. LDV fuel consumption in Indonesia is higher than in Thailand, Malaysia, and China even though its fleet is lighter than the fleets of those countries (GFEI, 2017). And Indonesia lags behind India in fuel consumption performance despite having similar average fleet weights. The relatively poor fuel efficiency of Indonesia's LDV fleet is obviously bad news in the present. But it also highlights the great potential for Indonesia to improve the efficiency of its vehicle fleet by using proven technologies, vehicle designs, and regulatory methods to push those technologies and designs into its domestic market.

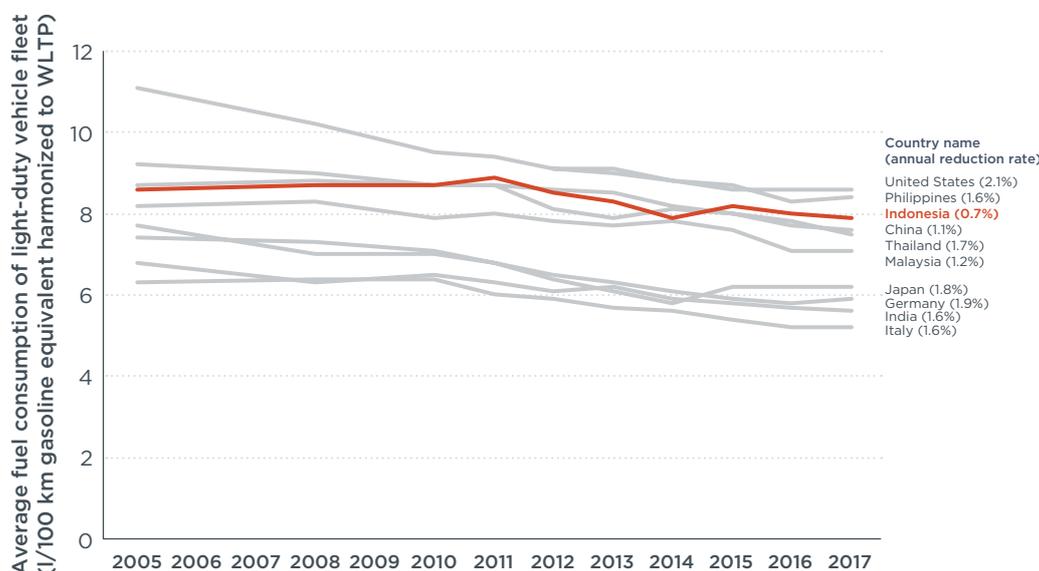


Figure 1. Comparison of average fuel consumption for light-duty vehicles (GFEI, 2017)

Indonesia needs to work hard to realize vehicle improvements if it hopes to meet its greenhouse gas reduction commitments under the United Nations Framework Convention on Climate Change (UNFCCC). The Government of Indonesia's (GOI) submission to the UNFCCC of its Nationally Determined Contribution (NDC)—the main reference document for Indonesia's GHG emission reduction strategies—pledges an unconditional GHG emission reduction of 29% below “business as usual” (BAU) levels by 2030, and up to 41% below BAU levels with international support. But the strategy for transportation in the NDC is limited to fuel-switching (to biofuels) and expansion of the national network of compressed natural gas (CNG) filling stations.⁴ The NDC does not set targets for fuel efficiency improvement or CO₂ emissions reduction for vehicle fleets in the years ahead.

Nevertheless, several strategic documents issued in recent years set out policies and directives that can create a more efficient fleet by accelerating the uptake of electric vehicles⁵ (EVs) and conventional hybrid vehicles across all vehicle types. The General Plan for National Energy (RUEN) issued in 2017 sets a fleet target of 2,200 EVs and conventional hybrids⁶ by 2025 and an ambitious fleet target of 2.1 million electric two-wheelers. Meanwhile, Presidential Regulation No. 55/2019 provides directive and regulatory certainty that allows industry players to accelerate the transition from internal combustion engine (ICE) vehicles to battery electric vehicles (BEVs).

4 The Ministry of Environment and Forestry Republic of Indonesia, “Nationally Determined Contribution (NDC) Pertama,” 2016, http://ditjenppi.menlhk.go.id/reddplus/images/resources/ndc/terjemahan_NDC.pdf.

5 Electric vehicles include battery electric vehicle and plug-in hybrid electric vehicles.

6 The original regulation regarding energy does not provide a detailed definition of hybrid vehicles. Furthermore, the Ministry of Industry includes both conventional hybrid and plug-in hybrid electric vehicles in their automotive targets. In this document we assume that the term “hybrid” can refer to either type (unless specific mention is made of plug-in hybrid electric or conventional hybrid vehicles). However different hybrid classifications are used in the discussion of the revised taxation policy later in the document.

The GOI also sees EV promotion as a spur to industrial development in Indonesia, particularly with regard to the automotive industry. President Joko Widodo has suggested that Indonesia is positioned to produce lithium batteries: the country sits on deposits of the lithium, nickel,⁷ and cobalt needed for such batteries. In addition, two battery manufacturing plants are being set up in Maluku Province and Central Sulawesi Province that could produce second generation lithium batteries (which feature higher output power density and improved safety). In sum, Indonesia has the potential to become a major hub in the EV industry.⁸

However, Indonesia is currently lagging in vehicle electrification compared to other markets. The Indonesian Automobile Industry Association (Gaikindo) reported that no BEVs⁹ and only 20 plug-in hybrid electric vehicles (PHEVs) were sold in 2019.¹⁰ Sales picked up in 2020, however; 250 BEVs were sold from January to October 2020, Gaikindo reported, without detailing the category or brand.¹¹ This information is consistent with data released by the Ministry of Transport (MoT), which show that as of September 2020, MoT had issued registration certificates for 229 electric passenger vehicles, 100 electric three-wheelers, 3 buses, and 1,947 electric two-wheelers.¹² The minimal EV sales in Indonesia lag far behind EV adoption in other markets. For example, EV sales in 2019 in key markets were: China (1.10 million), USA (330,000), Europe (590,000), and Japan (40,000).¹³

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- 7 The Ministry of Industry, "Cadangan Nikel Melimpah, Indonesia Dinilai Bakal Perkasa di Era Kendaraan Listrik," November 10, 2019 <https://kemenperin.go.id/artikel/21222/Cadangan-Nikel-Melimpah,-Indonesia-Dinilai-Bakal-Perkasa-di-Era-Kendaraan-Listrik>.
 - 8 Anggun P. Situmorang, Target mampu produksi baterai lithium, Jokowi mau RI jadi hub industri mobil listrik, 2019, <https://www.merdeka.com/uang/target-mampu-produksi-baterai-litium-jokowi-mau-ri-jadi-hub-industri-mobil-listrik.html> and Fea, "Target Indonesia produksi baterai kendaraan listrik pada 2022," 2019 <https://www.cnnindonesia.com/teknologi/20191216192202-384-457507/target-indonesia-produksi-baterai-kendaraan-listrik-pada-2022>.
 - 9 The Association of Indonesia Automotive Industries (GAIKINDO), "Indonesian Automobile Industry Data," accessed June 19, 2020, <https://www.gaikindo.or.id/indonesian-automobile-industry-data/>.
 - 10 Gaikindo reports only its members' data. Note that in 2019, BYD and Tesla sold their EV units to a taxi provider, Blue Bird, a process facilitated by the Ministry of Industry. The sales, however, were not included in the Gaikindo wholesale figures for 2019 because BYD and Prestige Motors (Tesla's local distributor) were not members of Gaikindo at that time.
 - 11 Rangga Rahadiansyah, "Segini Penjualan Mobil Listrik di Indonesia," November 20, 2020, <https://oto.detik.com/mobil/d-5269946/segini-penjualan-mobil-listrik-di-indonesia>.
 - 12 Rully Kurniawan, "Pelan Tapi Pasti, Populasi Kendaraan Listrik di Indonesia 2,278 Unit," September 9, 2020, <https://otomotif.kompas.com/read/2020/09/09/090200215/pelan-tetapi-pasti-populasi-kendaraan-listrik-di-indonesia-2278-unit>.
 - 13 International Energy Agency, "Global Electric Car Sales by Key Markets, 2010 - 2020," December 2020, <https://www.iea.org/data-and-statistics/charts/global-electric-car-sales-by-key-markets-2015-2020>.

OVERVIEW OF STRATEGIC DOCUMENTS

By the end of 2020, several strategic documents had been issued that included, or could help generate, policies to accelerate the uptake of more efficient vehicles and EVs in Indonesia. Table 1 lists the relevant strategic documents. These documents lay out visions for various vehicle types in the transportation sector. Key provisions of each document are specified in the sub-sections below.

Table 1. Strategic documents related to EVs and fuel efficiency

Policy Area	Year	Description
National Master Plan for Industry (RIPIN) (Government Regulation No. 14/2015)	2015	Envisions a transformation of Indonesia's industry to become more robust through innovation and technology between 2015 and 2035. It indicates the direction of vehicle efficiency and EV technology development.
National Medium-Term Plan (RPJMN) 2015 - 2019 (Presidential Regulation No. 2/2015)	2015	Served as the guiding document for strategic planning activity in national ministries from 2015 to 2019. It set targets to accelerate development of physical transportation infrastructure to promote economic growth.
National Energy Plan (RUEN) (Presidential Decree No. 22/2017)	2017	Mainly focused on energy security. It included a target of GHG emissions to 2050 for all sectors, including transport. It indicated policy measures that will improve vehicle fuel efficiency and increase adoption of EVs.
Presidential Regulation on Battery Electric Vehicles (Presidential Decree No. 55/2019)	2019	Enacted at the end of 2019 to provide direction and serve as a basis for the acceleration of the BEV program set by the national government.
National Medium-Term Plan (RPJMN) 2020 - 2024 (Presidential Regulation No. 18/2020)	2020	Serves as the guiding document for any strategic planning of national ministries for the 2020-2024 period. It encourages prioritization of renewable energy over fossil fuels.
Strategic Plan of National ministries 2020-2024	2020	Strategic plan of national ministries that follows the development targets outlined within the RPJMN 2020 - 2024.

National Master Plan for Industry (RIPIN) 2015 - 2035. The RIPIN¹⁴ is the government's guiding strategy document for Indonesian industry. Its vision is to strengthen Indonesia's industries based on innovation and technological advance. It lists the vehicle transport industry as one of 10 priority industries and 6 mainstay industries (which the Master Plan describes as industries with comparative advantages that position them to help drive Indonesia's economic development). The document lays out the direction of vehicle efficiency and EV technology development, in phases, from 2015 to 2035 (Table 2).

This document seeks to coordinate the work of automotive firms in pursuit of national planning objectives, by building synergies among domestic automotive component manufacturers. The goal is to build a more resilient industry in line with the country's strategic vision.

¹⁴ The Ministry of Industry Republic of Indonesia, "Rencana Induk Pengembangan Industri Nasional," 2015, <https://kemenperin.go.id/ripin>.

Table 2. Stages of Indonesia’s industry development according to RIPIN, and the relevance to the EV industry and fuel efficiency

Phase and Goal	Automotive industry development
2015 – 2019 (first stage) Enhance human resources capacity and increase adoption of technology	Automotive parts (Regulate automotive parts and attract investment for automotive parts manufacturers, increase local content requirement, and enhance capacity to produce automotive parts) Conventional engines and electric motors (Encourage further development of manufacturing for both domestic market and exporting) Power trains (develop more precise and efficient power trains) Heavy equipment
2020 – 2024 (second stage) Achieve competitiveness and environmental awareness through the enhancement of industrial structure, technology adoption, and enhanced human resources capacity	Engines (Encourage development of electric motors and fuel cells) Power trains (develop more precise and efficient power trains)
2025 – 2035 (third stage) Build a strong industry with a robust structure that is highly competitive globally and based on innovation and technology	Engines (further development from second stage)

National Medium-Term Plan (RPJMN) 2015 – 2019. This mid-term plan consisted of nine priorities for national development. The transport component focused on building infrastructure to connect all parts of the Indonesian archipelago, with an emphasis on road, railway and port infrastructure that would promote economic growth, especially outside of Java island. The plan also included a GHG emission reduction target of 2,982 million-ton CO₂e from the land transport sector through the development of low-carbon transport infrastructure.¹⁵ Reducing vehicle fuel consumption and electrification was not specifically mentioned in this RPJMN. At the Plan’s mid-term evaluation in 2017, the Planning Ministry (BAPPENAS) forecast that GHG emissions for the economy overall would fall by 26% by the end of 2019.¹⁶ But the government has provided no information on whether the 2019 forecast was achieved, nor on any emissions reductions realized in the transport sector.

National Energy Plan (RUEN). RUEN focuses on energy security and serves as the implementing regulation concerning energy in Indonesia;¹⁷ it is administered by the National Energy Committee (Dewan Energi Nasional). Development of RUEN involved a series of meetings with key government agencies responsible for exploration of energy sources and for production and distribution of energy; the plan reflects the results of a comprehensive analysis of energy consumption growth, including the projected energy mix through 2050. In summary, RUEN serves as the strategic document for energy management.

The National Energy Policy (KEN) is the guiding document for energy policy. Enacted through Government Regulation No 79/2014,¹⁸ KEN oversaw the creation of RUEN and provides direction for national energy management, with a goal of enhancing the

15 The Ministry of Planning “Republic of Indonesia, Rencana Pembangunan Jangka Menengah Nasional (RPJMN) 2015 – 2019,” 2015, <http://djsn.go.id/storage/app/media/RPJM/BUKU%201%20RPJMN%202015-2019.pdf>.
 16 The Ministry of Planning Republic of Indonesia, “Infografis Evaluasi Paruh Waktu RPJMN 2015 – 2019,” 2017, <http://pdtu.bindola.com/uploads/attachment/2017/10/1507212614.pdf>; The Ministry of Planning published only the mid-term evaluation of the RPJMN 2015 – 2019 and not the final evaluation.
 17 The President Republic of Indonesia, “Undang Undang Republik Indonesia No. 30 Tahun 2007 tentang Energi,” 2007, <https://jdih.esdm.go.id/peraturan/uu-30-2007.pdf>.
 18 The Ministry of Energy Republic of Indonesia, “Peraturan Pemerintah No. 79 tahun 2014 tentang Kebijakan Energi Nasional,” 2014, <https://jdih.esdm.go.id/index.php/web/result/186/detail>.

nation's energy security and supporting broader national sustainable development goals. The implementation timeline for KEN is through 2050. KEN sets a renewable energy target of 23% of the primary energy mix by 2025.

RUEN provides guidance for energy planning for both national and sub-national governments. It includes a projection of GHG emissions for the power, transport, commercial, industrial, household and other sectors, each projection featuring a BAU scenario and a highly efficient scenario, the latter aiming for a 58% reduction in GHG emissions by 2050.¹⁹

With regard to EV and fuel economy, RUEN's strategic guidance includes the following:

- » Mass uptake of electric (and hybrid-electric) powered cars & motorbikes. The assumption is that, by 2025, 2,200 electric and conventional hybrid cars, and 2.1 million electric motorcycles, will be in operation.
- » Preparation and implementation of fiscal policies to incentivize production and purchase of EV and conventional hybrid vehicles (2016 - 2019).²⁰
- » Design and implementation of a carbon tax policy on fossil fuels (2017 - 2019).
- » Establishment of fuel economy standards for motorized vehicles, especially private vehicles with model years before 2020 (2017 - 2019).²¹

RUEN can be reviewed and updated every five years if needed.²² For example, Indonesia missed the 2019 deadline for establishing fuel economy standards for motorized vehicles, and for developing a carbon tax policy. These could be incorporated into the next revision.

Presidential Regulation No.55/2019 on Battery Electric Vehicles. This 2019 regulation marks a new chapter in BEV development in Indonesia. The regulation offers clear guidance to the automotive industry on BEV development and provides opportunities for local governments and universities to become involved. This regulation has four objectives: (i) identify responsible and leading ministries/agencies for implementation, (ii) set a BEV definition and developing technical specifications, (iii) create BEV manufacturing capacity, and (iv) facilitate the market transition from ICEs to BEVs.

In terms of highlights, this regulation:

- » Clearly indicates that the scope of BEVs includes two and three-wheeler vehicles, as well as four-wheelers. Classification of BEVs follows the classification set by Act No.22/2009 on Traffic and Road Transport.²³
- » Requires the Coordinating Ministry on Maritime and Investment to head a coordinating committee that focuses on industrial development, attracting foreign investment, and arranging for implementation of this regulation. Members of this coordinating committee are national ministries responsible for energy, industry, infrastructure, transport, governance, research and development, environment and the national police.

19 The President Republic of Indonesia, "Peraturan Presiden Republik Indonesia No. 22 Tahun 2017 tentang Rencana Umum Energi Nasional," 2017, <https://www.esdm.go.id/assets/media/content/content-rencana-umum-energi-nasional-ruen.pdf>. Projections by sector are only shown graphically, as the source did not report specific values.

20 Fiscal policies mentioned here are found in Government Regulation No 73/2019, which will be discussed in the following section.

21 According to RUEN's timeline for developing a fuel economy standard, the deadline was 2019 and apparently was not met. It is not known if, during the review process for RUEN, the development of a fuel economy standard will be preserved as an objective.

22 M. Hamidi Rahmat, Public Affairs Office, Secretary of Cabinet Republic of Indonesia, 2017, <https://setkab.go.id/ruen-rencana-umum-energi-nasional/75/>.

23 The President, Republic of Indonesia, "Undang Undang Republik Indonesia Nomor 22 Tahun 2009 Tentang Lalu Lintas dan Angkutan Jalan," 2009, http://jdih.dephub.go.id/assets/uudocs/uu/uu_no.22_tahun_2009.pdf.

- » Charges the Ministry of Industry (MOI) with setting up BEV technical specifications.
- » Empowers the Ministry of Energy and Mineral Resources (MEMR) to regulate the electricity tariffs for BEVs.
- » Emphasizes building domestic EV manufacturing capacity and follows the roadmap set up by the MOI²⁴ for development of a national motor vehicle industry, which set an ambitious goal of producing an increasing share of EVs (including hybrid, PHEV, and fuel cell vehicles) locally. Manufacturers should increase local manufacturing content from 40% in 2019 to a minimum of 80% in 2030 for four-wheelers.²⁵ To achieve these targets, the regulation also calls for universities and research institutions in Indonesia to cooperate with industry on R&D and innovation. Nevertheless, the regulation still allows BEV manufacturers to import BEV components, parts, and even whole vehicles for a set period after establishment of a manufacturing facility in Indonesia.²⁶
- » Provides guidance on fiscal and non-fiscal incentives related to BEV manufacturing for industries, universities and individuals (end users). In total, 17 fiscal and non-fiscal incentives are suggested under the regulation (see Box below).
- » Provides general guidelines for deployment of charging infrastructure, and opens infrastructure development to national state-owned enterprises (SoE or BUMN), locally owned state enterprises (or BUMD), and private companies. The state-owned electric company (PLN) is tasked with pioneering the development of public charging stations, from designing the charging technology and grid integration to creating the business model and setting the charging rate. The regulation allows power companies with an official license from the government (IUPTL or Izin Usaha Penyediaan Tenaga Listrik), and their business partners, to supply electricity to these public charging stations.

24 The roadmap for national motor vehicle industry was included in Ministry of Industry Regulation No. 31/M-IND/PER/9/2017 and later amended through Ministry of Industry Regulation No. 8/2018, http://jdih.kemenperin.go.id/site/baca_peraturan/2364.

25 Two- and three-wheeler category requires a minimum 40% of local manufacturing content in 2019 and a minimum 80% in 2030.

26 The period allowed for import of BEVs is still under discussion.

FISCAL AND NON-FISCAL INCENTIVES SUGGESTED FOR BEV ACCORDING TO PRESIDENTIAL REGULATION NO. 55/2019

Fiscal incentives:

- » Import duties for completely knocked down (CKD) and incompletely knocked down (IKD) products, or for the main components, for a certain period
- » Luxury taxes
- » Tax deductions or tax exemptions (applies to locally regulated taxes, e.g., the transfer tax and circulation tax, and to nationally regulated taxes)
- » Import duties on engines, goods and other materials, in order to support domestic capital investment
- » Suspension of import duties for export
- » Import duties on raw materials and/or other supporting materials required for BEV production
- » Incentives for production of equipment related to charging infrastructure
- » Incentives for export financing
- » Fiscal incentives for research and development, and for technology innovation
- » Reduced parking fees (with formulations developed by local governments)
- » Reduced electricity fees at charging stations
- » Funding for development and construction of charging stations
- » Labor certification for human resources involved in BEV manufacturing
- » Product certifications and/or technical standards for manufacturer of BEV and its components

Non-Fiscal incentives:

- » Exclusion from vehicle restriction policies²⁷
- » Handover, to EV manufacturers, of production rights of BEV technology whose patent licenses were acquired by national and/or local governments
- » Security assurances for industries involved in BEV production, and inclusion of these industries in the list of national vital strategic assets

²⁷ For example: exclusion from the odd-even policy in Jakarta.

National Medium-Term Plan (RPJMN) 2020 – 2024. This Plan is the first in Indonesian’s history to include a chapter on the environment, disaster resilience, and climate change. Low-carbon initiatives figure more prominently than in the 2015-2019 Plan. Although vehicle fuel efficiency and electrification are not mentioned, the Plan’s discussion of the energy sector encourages prioritization of renewable energy over fossil fuels.

Strategic Plans of National ministries (RENSTRA) & Government Work Plans

(RKP). Strategic plans are required of national ministries by Act No. 25/2004, which covers the National Development Plan System.²⁸ They are meant to be the reference documents for planning and budget development in each ministry. The strategic plans cover vision, mission, objective, target, policy direction, strategy, activities, regulatory frameworks and funding mechanisms for national development in line with the function of the respective national ministries. The 2020 – 2024 strategic plans of national ministries are built based on Presidential Regulation No. 18/2020 on National Mid-Term Planning (RPJMN) 2020 – 2024.

OVERVIEW OF VEHICLE FUEL EFFICIENCY AND EV POLICIES

Indonesia has yet to introduce strong policies directly targeting vehicle fuel efficiency. Although improved automotive fuel economy is embraced in the ASEAN regional plan and is solidified through the ASEAN Fuel Economy Roadmap 2018 – 2025,²⁹ GOI has no plans for concrete action on this front. However, policies tangentially related to vehicle fuel efficiency have been introduced and are reviewed in this section, including the vehicle labeling program and the Low-Cost Green Car program.

This section also summarizes emerging policies related to EV development in Indonesia. The national policies focus mainly on regulating and setting a roadmap for EV manufacturing, incentivizing financing and investment, regulating infrastructure development, and adoption of EV fleets. Major local policies and industry-led activities are also summarized.

VEHICLE LABELING PROGRAM

The vehicle labeling initiative was introduced in 2003 through MoEF Regulation No. 141/2003 on emission standards for new vehicle types and current production, which also served as the basis for Euro II-equivalent emission standards.³⁰ The regulation required manufacturers to release information on emission levels of CO, HC, NOx, HC + NOx, and particulates through public display, including through vehicle labeling. However, it did not require manufacturers to provide specific information regarding fuel economy or CO2 emissions. Its successor, MoEF Regulation No. 20/MENLHK/SETJEN/KUM (1/3/2017), which sets the basis for Euro IV-equivalent emission standards,³¹ also required public release of emission levels. Figure 2 below is taken from an MoEF regulation regarding Euro IV-equivalent standards, which requires that vehicles display emission levels.

28 The President Republic of Indonesia, “Undang Undang Republik Indonesia Nomor 25 Tahun 2004 Tentang Sistem Perencanaan Pembangunan Nasional,” 2004, <http://www.dpr.go.id/dokjdi/document/uu/26.pdf>.

29 The ASEAN Secretariat, “ASEAN Fuel Economy Roadmap for the Transport Sector 2018 – 2025: with Focus on Light Duty Vehicles, 2018,” <https://asean.org/storage/2019/03/ASEAN-Fuel-Economy-Roadmap-FINAL.pdf>.

30 Association of Indonesia Automotive Industries (GAIKINDO), Mengenal Standar Emisi Euro, 2015, <https://www.gaikindo.or.id/mengenal-standar-emisi-euro-bag-1/>.

31 Association of Indonesia Automotive Industries (GAIKINDO), “Sekilas Tentang Standar Emisi Euro IV di Industri Otomotif Indonesia,” 2019, <https://www.gaikindo.or.id/sekilas-tentang-standar-emisi-euro-iv-di-industri-otomotif-indonesia/>.

	<p>Telah lulus uji emisi gas buang Kendaraan Bermotor Tipe Baru. sesuai dengan Permen LHK No. Tahun 2016</p> <p>Merk :</p> <p>Tipe :</p> <p>Dengan hasil:</p> <p>CO : 0,5 gram/km BME 1,0 gram/km</p> <p>HC : 0,05 gram/km BME 0,1 gram/km</p> <p>NO_x : 0,05 gram/km BME 0,08 gram/km</p>
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Figure 2. Public display label for vehicle emissions as required by the MoEF Regulation No. P.20/MENLHK/SETJEN/KUM.1/3/2017 regarding Euro IV equivalent emission standard for vehicles

Based on our research, only a handful of manufacturers voluntarily display information on fuel consumption and/or CO₂ emissions in their brochures or on their webpages. Figure 3 gives an example of information on fuel efficiency and CO₂ emissions provided by one car manufacturer, BMW.

Technical data.	440i Coupé	430i Convertible	430i Gran Coupé
Transmission type	8-AT	8-AT	8-AT
Cylinders / Displacement (cm ³)	6 / 2998	4 / 1998	4 / 1998
Max output / Max torque (hp/Nm)	326 / 450	252 / 350	252 / 350
Top speed (km/h)	250	250	250
Acceleration 0-100 km/h (s)	5.0	6.3	5.9
Combined fuel consumption (km/l)	15.1	16.9	18.2
CO ₂ emission (g/km)	154	138	129

Figure 3. Example of information on fuel consumption and CO₂ emissions³²

PURCHASE INCENTIVES FOR SMALLER CARS

In 2013, MOI launched the Low-Cost Green Car program (LCGC), through Government Regulation No. 41/2013,³³ to provide tax incentives for smaller vehicles that meet fuel efficiency requirements.

Motor vehicles sold in Indonesia are subject to several taxes, including a luxury tax, value-added tax (VAT), annual circulation tax, and transfer tax. The luxury tax and VAT are regulated by the central government through the Ministry of Finance, while the annual circulation tax and transfer tax are regulated by provincial governments according to Act No. 28/2009.³⁴ The VAT is 10% of the vehicle purchase price. According to Ministry of Finance (MOF) Regulation No. 33/PMK.10/2017,³⁵ the luxury tax tariff is set at between 10% and 125% of a product's value. Table 3 summarizes different luxury tax tariffs by vehicle group. Because the circulation and transfer taxes are regulated by provincial governments, the tax paid for any particular vehicle varies

32 BMW Indonesia, Brochure "BMW 4 Series," accessed June 19, 2021, [https://www.bmw.co.id/content/dam/bmw/marketID/bmw_co_id/Brochures/pdf/BROCHURE%20-%20BMW%204%20Series%20\(F32\).pdf](https://www.bmw.co.id/content/dam/bmw/marketID/bmw_co_id/Brochures/pdf/BROCHURE%20-%20BMW%204%20Series%20(F32).pdf).

33 The President Republic of Indonesia, "Peraturan Pemerintah Republik Indonesia No. 41 tahun 2013 tentang Barang Kena Pajak yang Tergolong Mewah Berupa Kendaraan Bermotor yang Dikenai Pajak Penjualan atas Barang Mewah," 2013, <https://peraturan.bpk.go.id/Home/Details/5373/pp-no-41-tahun-2013>.

34 The President Republic of Indonesia, "Undang Undang Nomor 28 Tahun 2009 tentang Pajak Daerah dan Retribusi Daerah," 2009, <https://jdih.kemenkeu.go.id/fulltext/2009/28tahun2009uu.htm>.

35 The Minister of Finance Republic of Indonesia, "Peraturan Menteri Keuangan Republik Indonesia Nomor 33/PMK.010/2017," 2017, https://www.pbtaxand.com/assets/uploads/files/1488959109-33_PMK_010_2017.pdf.

across provinces. Act No. 28/2009 sets a circulation tax tariff range of 1% to 2% for the first vehicle owned by an individual; the tariff for ownership of subsequent vehicles is set at between 2% and 10% of the vehicle purchase price. The Act also sets the transfer tax tariff at a maximum of 20% of the vehicle selling price for new cars, and 1% for used cars. As an example, the transfer tax of a new vehicle in Jakarta, the capital, is 10%.³⁶

Under the LCGC program, the luxury tax is not applied to vehicles that are small, fuel-efficient, and inexpensive. For example, it is not applied to cars with fewer than 10 seats and engine capacity of less than 1,200 cc (gasoline) or 1,500 cc (diesel), and whose fuel economy is at least 20 km/l of gasoline equivalent as defined by the New European Driving Cycle (NEDC). Furthermore, the maximum selling price of vehicles exempt from the luxury tax is set at IDR 95 million (approximately \$6,500 US at the December 2020 exchange rate), excluding transfer, circulation, and local taxes.³⁷

Table 3. Existing luxury tax tariff for motorized vehicles in Indonesia according to MOF Regulation No. 33/PMK.10/2017

Category	Seats (including driver)	Engine capacity (cc)	Fuel type	Tax tariff
Passenger vehicle (PV)	10 (incl.) to 15	All range	Gasoline/diesel/electric	10%
4 x 2 PV exclude sedan and station wagon*	<10	≤1500	Gasoline/diesel/electric	
4 x 2 PV exclude sedan and station wagon	<10	1500 – 2500	Gasoline/diesel/electric	20%
Sedan or station wagon and 4 x 4 PV*	<10	≤1500	Gasoline/diesel/electric	30%
4 x 2 PV exclude sedan and station wagon	<10	2500 – 3000	Gasoline/electric	40%
Sedan or station wagon and 4 x 4 PV	<10	1500 – 3000	Gasoline/electric	
	<10	1500 – 2500	Diesel/electric	
PV all type	<10	>3000	Gasoline/electric	125%
	<10	>2500	Diesel/electric	

Note: Rows in red indicate vehicle categories with the potential to qualify for the low-cost green car program, and therefore potentially exempt from the luxury tax.

One study conducted by the Trisakti Institute of Transport and Logistics and the Initiative for Climate Action Transparency showed that the luxury tax exemption has led to a significant increase in demand for vehicles qualified for the LCGC program.³⁸ Statistics from Gaikindo show that the market share of LCGC vehicles increased from 4% in 2013 to 21% of new passenger vehicle sales in 2019, as shown in Figure 4.

36 Badan Pendapatan Daerah Provinsi DKI Jakarta (Local Revenue Agency of Jakarta Province), explanation of transfer tax for motor vehicle, 2020, <https://bprd.jakarta.go.id/halaman/bea-balik-nama-kendaraan-bermo>

37 The Ministry of Industry, “Peraturan Menteri Perindustrian Republik Indonesia No. 33/M-IND/PER/7/2013 tentang Pengembangan Produksi Kendaraan Bermotor Roda Empat Yang Hemat Energi dan Harga Terjangkau, 2013,” http://jdih.kemenperin.go.id/site/baca_peraturan/1512.

38 Bisnisnews.id, “Ini Tiga Kebijakan yang Dipelajari Dalam Assessment ITL Trisakti – ICAT,” 2019, <https://bisnisnews.id/detail/berita/ini-tiga-kebijakan-yang-dipelajari-dalam-asesmen-itl-trisaktiicat>.

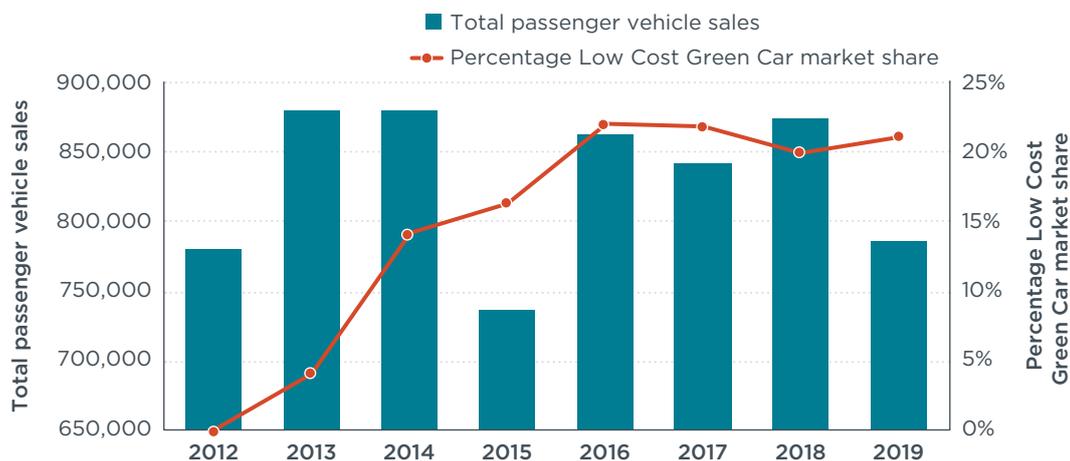


Figure 4. Passenger vehicle sales and LCGC market share in Indonesia 2012 - 2019, Source: Gaikindo

The luxury tax and the LCGC program were reviewed in 2019 and subsequently revised through Government Regulation No. 73/2019³⁹, which will take effect in October 2021. The most significant difference in the new regulation is that (a) the luxury tax rates are no longer calculated based on engine capacity alone, but take into consideration engine efficiency and emissions; and (b) the LCGC program was expanded to become the Low-Carbon Emission Vehicle (LCEV) program.

Under the new regulation, the LCEV program includes not only LCGC, but also hybrid, flexy engine⁴⁰ vehicles, and electric vehicles. In addition, eligibility requirements for LCGC were slightly revised. The new regulation introduces a CO₂ emission limit of no more than 120 g/km for passenger cars with engine capacity of up to 1,200 cc (gasoline) and 1,500 cc (diesel). The fuel economy limit for gasoline vehicles remains 20 km/l (liter of gasoline), while a limit of 21.8 km/l (liter of diesel) is added for diesel vehicles. These vehicles will be subject to a 15% luxury tax tariff from a 20% tax base, resulting in a tax rate of 3%. If minimum local content requirements are met, the resulting tax rate is zero for PHEV, BEV and FCEV with fuel consumption equal to 28 km/l, or CO₂ emissions up to 100 g/km. If the minimum local content requirements are not met (e.g., in the case of fully imported EVs), the luxury tax rate of PHEV, BEV and FCEV is 15%. A summary of the new regulation is found in Table 4. MOI also provided quantitative targets for the LCEV program, which are shown in Table 5.

39 The President Republic of Indonesia, "Peraturan Pemerintah Republik Indonesia No. 73 tahun 2019 tentang Barang Kena Pajak yang Tergolong Mewah Berupa Kendaraan Bermotor yang Dikenai Pajak Penjualan atas Barang Mewah," 2019, <https://jdih.kemenkeu.go.id/fullText/2019/73TAHUN2019PPP.pdf>.

40 Incentives for flexy engine are given only for vehicles that run on ethanol (E100) or biodiesel (B100), consistent with the LCEV program run by MoI. The government has given a signal that biodiesel 100 will start by 2022 or closely after the year in which the new Euro IV emission standard for diesel becomes mandatory, although this statement may be regarded skeptically due to the lack of funding resources.

Table 4. New luxury tax tariffs according to Government Regulation No. 73/2019 (effective October 2021)

Category		CO ₂ * (g/km)	Tax tariff based on engine capacity (cc)			
			<1500	1500 (incl.) to 3000	3000 (incl.) to 4000	Above 4000 (Super car)
PV (<10 seats)		<150	15%		40%	95%
		150 - 200	20%		50%	
		200 - 250	25%		60%	
		>250	40%		70%	
PV (10 incl. to 15 seats)		<200	15%		25%	
		≥200	20%		30%	
Incentive Program	Low Cost Green Car (LCGC)	≤120	3%	-	-	-
	Full hybrid	<100	2%		20%	-
		100 - 125	5%		25%	-
		125 - 150	8%		30%	-
	Mild Hybrid	<100	8%		20%	-
		100 - 125	10%		25%	-
		125 - 150	12%		30%	-
	Flexy Engine (E100/B100)	-	8%			-
PHEV, BEV, FCEV	≤100	0% (15%**)				

* Equivalent fuel economy targets (km/l) for gasoline and diesel vehicles, also specified in the regulation, are not presented in this table

** If the production of the vehicles does not meet the minimum local content requirement (e.g. imported EVs)

Table 5. Automotive production quantitative targets

Item			2020	2025	2030	2035
Motor vehicle (four-wheeler)	Production	Total (unit)	1,500,000	2,000,000	3,000,000	4,000,000
		LCEV percentage	10%	20%	25%	30%
		LCGC percentage	25%	20%	20%	20%
	Domestic sales	Total (unit)	1,250,000	1,690,000	2,100,000	2,500,000
	Export	Total (unit)	250,000	310,000	900,000	1,500,000
Motorcycle (including three-wheeler)	Production	Total (unit)	7,500,000	8,800,000	9,800,000	10,750,000
		Electric two- and three-wheeler percentage	10%	20%	25%	30%
	Domestic sales	Total (unit)	6,750,000	7,700,000	8,400,000	9,000,000
	Export	Total (unit)	750,000	1,100,000	1,400,000	1,750,000

Source: Ministry of Industry, presented at the Indonesia Electrification Strategy Workshop, 29 September 2020

The revised luxury taxation system is an improvement because it includes CO₂ emissions and fuel efficiency as criteria for determining the tax rate. However, the CO₂ bands used to determine tax rates are too wide to provide a consistent incentive for improving passenger vehicle efficiency. As a best practice, using a continuous tax rate is more effective than using a stepwise schedule, which provides no incentive to improve the performance of vehicles that are not close to the next step. In addition the stepwise schedule provides less certainty about the value of adding technology to

future vehicles.⁴¹ The performance of France's feebate system proves the effectiveness of a continuous CO₂-based tax design.⁴²

As noted, the new LCEV program expands tax benefit coverage to flexy engines, hybrids and EVs. However, for conventional vehicles, the fixed eligibility threshold of 120g CO₂/km for a lower luxury tax rate will not provide an effective incentive for fuel economy improvement, beyond shifting market preference to vehicles with smaller engines. It will also provide a strong incentive to replace naturally aspirated engines with small turbocharged engines, where most of the efficiency benefit of the smaller engine is lost to boost and higher performance. In order to promote efficiency technologies across all nonhybrid vehicles equally, tax rates in the luxury taxation system or LCGC/LCEV program should be based on continuous CO₂ emission levels.

ELECTRIC VEHICLE POLICIES

Presidential Regulation No. 55/2019 serves as overarching guidance for developing specific policies related to EVs and their charging infrastructure. Indonesia has not yet developed supporting policies or clear incentives schemes for vehicle electrification; however several ministerial regulations to support adoption of EVs were enacted in Q3 and Q4 of 2020. And in early 2020 the Ministry of Finance proposed to Parliament a carbon tax on automotive products⁴³ that was expected to boost EV use by consumers, but the draft was rejected by the Parliament.

Policies relevant to industry regulation

In 2020, two regulations related to BEV were issued by the Ministry of Industry. One is the Minister of Industry Regulation No. 27/2020⁴⁴ on Specification, Roadmap for Development, and Calculation of Local Content for BEV. This regulation defines specifications for electric motor usage (in kilowatts), battery capacity (in kilowatt hours) and charging (direct charging and battery swap) for two- and three-wheeler and four-wheeler BEVs. The roadmap covered in this regulation is based on the roadmap for Indonesia's automotive sector development discussed earlier, with particular attention to BEVs. This regulation sets detailed requirements for calculating local manufacturing content for BEVs.

The other regulation is the Ministry of Industry Regulation No. 28/2020⁴⁵ on Completely Knocked Down (CKD) and Incompletely Knocked Down (IKD) imports related to BEVs. The main components covered in this regulation include (i) body, cabin and chassis, (ii) battery, and (iii) drive train. Lists of main components, supporting components, and excluded components are provided in the regulation's annex. The regulation is relevant to two- and three-wheelers and four-wheelers, and requires that at least one main component be manufactured domestically.

41 John German, and Dan Meszler, "Best practices for feebate program design and implementation," (ICCT: Washington, DC, 2016), <https://theicct.org/publications/best-practices-feebate-program-design-and-implementation>.

42 Zifei Yang, "Practical lessons in vehicle efficiency policy: The 10-year evolution of France's CO₂-based bonus-malus (feebate) system," (ICCT: Washington, DC, 2016), <https://theicct.org/blog/staff/practical-lessons-vehicle-efficiency-policy-10-year-evolution-frances-co2-based-bonus>.

43 Hidayat Setiaji, "Plus-Minus Rencana Sri Mulyani Beri Cukai Buat Mobil-Motor," February 19, 2020, <https://www.cnbcindonesia.com/news/20200219135918-4-139016/plus-minus-rencana-sri-mulyani-beri-cukai-buat-mobil-motor>.

44 Ministry of Industry, "Peraturan Menteri Perindustrian No 27 Tahun 2020 Tentang Spesifikasi, Peta Jalan Pengembangan, dan Ketentuan Penghitungan Nilai Tingkat Komponen Dalam negeri Kendaraan Bermotor Listrik Berbasis Baterai," 2020, <https://m.hukumonline.com/pusatdata/detail/lt5f7c0c1c759c8/nprt/lt51a5dc754da75/peraturan-menteri-perindustrian-nomor-27-tahun-2020>.

45 Ministry of Industry, "Peraturan Menteri Perindustrian No 28 Tahun 2020 Tentang Kendaraan Bermotor Listrik Berbasis Baterai dalam Keadaan Terurai Lengkap dan Keadaan Terurai Tidak Lengkap," 2020, <https://www.hukumonline.com/pusatdata/detail/lt5f7c0ef8e4cb1/nprt/lt51a871ffb74f6/peraturan-menteri-perindustrian-nomor-28-tahun-2020>.

Also in 2020, the Ministry of Transport launched the Minister of Transport Regulation No. 45/2020⁴⁶ on Specific Vehicles using Electric Motor. This regulation defines “specific vehicles” as scooters, bicycles, hoverboards, unicycles and autopedes powered by electric motors. It regulates minimum safety features of the vehicles and how they are used. It further regulates specific road sections allocated for these modes, including rules governing dedicated bicycle lanes, residential areas, car-free days, tourist destinations, integration with public transport, office areas, and areas outside highways. It also covers requirements for rental operators of these vehicles.

Policies relevant to financing and investment

In the realm of investment, the Ministry of Finance, through Regulation No. 150/PMK. 010/2018,⁴⁷ and the Indonesia Investment Coordinating Board, through Regulation No. 1/2019,⁴⁸ provided a so-called “tax holiday” to eligible pioneer industries, which include manufacturers of certain types of motor vehicles or components. The tax holiday is generous, consisting of deduction of corporate income tax paid on income from main business activities, which can amount to 100% of the total corporate income tax payable. Table 6 specifies the eligible pioneer industries, including manufacturers that produce EVs or EV components.

The number of years a corporation can enjoy the tax deduction is determined by the investment value of the eligible product, as described below. Even after receiving a 100% reduction of corporate income tax, investors can be given another 50% reduction in the following 2 years.

- » 5 years (investment value of IDR 500 billion)
- » 7 years (investment value of IDR 1 - 5 trillion)
- » 10 years (investment value of IDR 5 - 15 trillion)
- » 15 years (investment value of IDR 15 - 30 trillion)
- » 20 years (investment value of more than IDR 30 trillion)

46 Ministry of Transport, Peraturan Menteri Perhubungan Republik Indonesia No PM 45 tahun 2020 Tentang Kendaraan Tertentu Dengan Menggunakan Penggerak Motor Listrik, 2020, http://jdih.dephub.go.id/assets/uudocs/permen/2020/PM_45_TAHUN_2020.pdf.

47 Ministry of Finance Republic of Indonesia, “Peraturan Menteri Keuangan Republik Indonesia No. 150 Tahun 2018 Tentang Pemberian Fasilitas Pengurangan Pajak Penghasilan Badan,” 2018, <https://peraturan.bpk.go.id/Home/Details/113460/pmk-no-150pmk0102018>.

48 Indonesia Investment Coordinating Board, “Peraturan Badan Koordinasi Penanaman Modal Republik Indonesia Nomor 1 Tahun 2019 Tentang Rincian Bidang Usaha dan Jenis Produksi Industri Pionir yang Dapat Diberikan Fasilitas Pengurangan Pajak Penghasilan Badan Serta Pedoman dan Tata Cara Pemberian Fasilitas Pengurangan Pajak Penghasilan Badan,” 2019, https://peraturan.bkpm.go.id/jdih/userfiles/batang/2019_1_PERBKPM_TH_KUMHAM_.pdf.

Table 6. Pioneer industries eligible for the tax holiday

Indonesia Standard Industrial Classification (KBLI)	Type of Production
29100	Manufacturing of electric vehicles with 4 wheels or more that integrate the battery and electric motor
29300	Manufacturing of battery for electric vehicles with 4 wheels or more Manufacturing of electric motor for electric vehicles with 4 wheels or more Manufacturing of flexy engine compatible with 100% biodiesel for electric vehicles with 4 wheels or more Manufacturing of a minimum of 2 main components for the engine of a motor vehicle with four wheels or more (i.e, piston, cylinder head, cylinder block, camshaft, crankshaft, and connecting rod, that is integrated with manufacturing of electric vehicles with 4 wheels or more Manufacturing of electric power control units (PCU) for electric vehicles with 4 wheels or more
30912	Manufacturing of battery for 2-wheeled or 3-wheeled electric motor vehicle Manufacturing of electric motor for 4-wheeled or 3-wheeled electric motor vehicle Manufacturing of electric power control unit (PCU) for 4-wheeled or 3-wheeled electric motor vehicle

Policies relevant to charging infrastructure and electricity

The state-owned electric company, PLN, has developed a roadmap for a rollout of charging stations from 2020 to 2030, when the number of charging stations is expected to grow from 180 to 7,146.⁴⁹ No detailed information exists yet regarding the planned locations of the charging stations. As of October 2019, the company has signed an MoU with 20 stakeholders, including EV manufacturers, transport operators and apps & services providers, for the provision of EV charging infrastructure. PLN also gives a free upgrade of installed power capacity for households that use electric cars and a 75% discount for households that use electric motorcycles.⁵⁰

In September 2020, the MEMR issued Regulation No. 13/2020 on Charging Infrastructure for BEV.⁵¹ This regulates charging stations and battery swap stations, and covers administrative matters such as permits and registration, safety of charging stations, and electricity tariffs. Specific requirements such as type of connectors, vehicle inlets and charging mode (normal/fast/ultrafast charging) are also included. It provides guidance on how to site charging stations, and the specific technical mechanisms used for public charging and for charging by providers of public transport. Finally, regarding the electricity tariff the regulation prescribes several business models, categorizations of tariffs, and reference calculations based on each category.

In mid-2020 PLN rolled out the “charge.IN” app, which can be downloaded from the app store. This app provides a list of public charging stations and directions to them, and also serves as a payment gateway through *Link Aja!*, an e-money platform run jointly by several SoEs. The electricity tariff using this app is set to IDR 1,300 per kWh (roughly 9 US cents), which is the same tariff applied for a typical domestic household.⁵²

49 Eniya Listiani Dewi, “Upaya BPPT Membangun Ekosistem KBL & CS,” BPPT Presentation, 2020

50 Pebrianto Eko Wicaksono, “PLN Beri Diskon 100% Tambah Daya Pemilik Mobil Listrik”, 2019, <https://www.liputan6.com/bisnis/read/4036925/pln-beri-diskon-100-persen-tambah-daya-pemilik-mobil-listrik>.

51 The Ministry of Energy and Mineral Resource Republic of Indonesia, “Peraturan Menteri ESDM Nomor 13 Tahun 2020 Tentang Penyediaan Infrastruktur Pengisian Listrik untuk Kendaraan Bermotor Listrik Berbasis Baterai,” (n.d.), <https://jdih.esdm.go.id/index.php/web/result/2070/detail>.

52 Perusahaan Listrik Negara (PLN), “Tarif Tenaga Listrik,” 2021, <https://web.pln.co.id/pelanggan/tarif-tenaga-listrik>.

Policies issued by local governments

In parallel with national EV policy development, local governments have set their own EV promotion policies. For instance, the Governor of Jakarta issued Gubernatorial Regulation No.3/2020⁵³ which exempts BEVs from transfer taxes.⁵⁴ Jakarta sets a 10% transfer tax rate for newly purchased vehicles (first delivery); subsequent deliveries are taxed at 1% of product value.⁵⁵ This regulation was issued in January 2020 and will expire at the end of December 2024. In addition, Jakarta is making ambitious moves to promote electric buses on BRT lines operated by TransJakarta, the state-owned bus operator that manages all bus operations in Jakarta. TransJakarta is also developing a plan to transform its fleets into battery electric bus (BEB) fleets by 2030.⁵⁶ And the Greater Jakarta Transport Management Board (BPTJ) has announced that they are planning to run 41,000 e-buses by the end of 2025 to serve the greater Jakarta area.⁵⁷

Meanwhile, the Governor of West Java plans to convert all government vehicles to EVs. This bold initiative is the first to require EV use in provincial government fleets.⁵⁸ The government of Bali Province, a popular tourist destination, is coordinating with stakeholders to integrate EV into the tourism industry. Bali is supporting the promotion of electric two- and three-wheelers because several domestic manufacturers have set up their showrooms and sales center in Bali. And the City of Denpasar in Bali started an electric bus trial in November 2020.⁵⁹ On energy policy, the Governor of Bali has issued Gubernatorial Regulation No. 45/2019 on Clean Energy for Bali⁶⁰ which is meant to implement the national energy policy at the provincial level. Although there is no specific mention of an energy mix target, the regulation encourages the use of cleaner and renewable energy in all sectors, including the transport sector, with a focus on battery electric vehicles.⁶¹

Local EV policies and initiatives can often be replicated nationwide. Building on Jakarta's success in the BEB trial, the Ministry of Transport (MOT) is exploring BEB introduction in 5 large Indonesian cities: Palembang, Solo, Medan, Surabaya and Denpasar.⁶² Traditionally, MOT provides buses to local governments running BRT systems, but starting in 2021, MOT will adopt the "buy the service" model: instead of buying new buses for municipalities, MOT will contract for services from third parties that operate the BEBs.⁶³

53 Governor, Province of DKI Jakarta, "Peraturan Gubernur DKI Jakarta No.3 Tahun 2020 tentang Insentif Pajak Bea Balik Nama Kendaraan Bermotor Atas Kendaraan Bermotor Listrik Berbasis Baterai (Battery Electric Vehicle) Untuk Transportasi Jalan," 2020, <https://peraturan.bpk.go.id/Home/Details/131358/pegrub-prov-dki-jakarta-no-3-tahun-2020>.

54 In Bahasa it is called Bea Balik Nama (BBN), which is charged for any transaction related to vehicle purchase and covers both newly purchased vehicles from distributors and used vehicles.

55 Tax and Retribution Agency DKI Jakarta Province, Bea Balik Nama Kendaraan Bermotor (BBN-KB), <https://bprd.jakarta.go.id/bbn-kb/>; There are two categories for transfer tax, passenger cars, buses, trucks, motorcycles, tricycles are considered as "common vehicles", while the other category being the "special vehicles" that includes special equipment and heavy machineries that do not require public road and the transfer tax rate for this special vehicle category is 0.75% for first delivery, and 0.075% for subsequent deliveries.

56 Ridwan Arifin, Setelah Bus Listrik China, TransJakarta akan Jajal Bus Listrik Swedia, 2020, <https://oto.detik.com/berita/d-4930076/setelah-bus-listrik-china-transjakarta-akan-jajal-bus-listrik-swedia>.

57 Nursita Sari, "BPTJ Targetkan 41,000 Bus Listrik Beroperasi Tahun 2024," 2019, <https://megapolitan.kompas.com/read/2019/08/30/07024731/bptj-targetkan-41000-bus-listrik-beroperasi-tahun-2024>.

58 Rizky Perdana, "Mulai 2021, Ridwan Kamil Wajibkan Pembelian Mobil Listrik untuk Kendaraan Dinas," November 2, 2020, <https://prfmnews.pikiran-rakyat.com/jawa-barat/pr-13901769/mulai-2021-ridwan-kamil-wajibkan-pembelian-mobil-listrik-untuk-kendaraan-dinas>.

59 Nidia Zuraya, "Bali Dapat Prioritas Uji Coba Bus Listrik," *Republika*, November 5, 2020, <https://republika.co.id/berita/qj9yjd383/bali-dapat-prioritas-uji-coba-bus-listrik>.

60 Ninis Chairunisa, "Bus Listrik Wisata Beroperasi di Bali, Catat Rutenya," November 9, 2020, <https://travel.tempo.co/read/1403557/bus-listrik-wisata-beroperasi-di-bali-catat-rutenya/full&view=ok>.

61 The Governor of Bali Province, "Peraturan Gubernur Bali no 45 Tahun 2019 Tentang Bali Energi Bersih," November 13, 2019, <https://jdih.baliprov.go.id/produk-hukum/peraturan/abstrak/24818>.

62 Dwi Aditya Putra, "Bus Listrik TransJakarta Sudah Angkut 14 Ribu Penumpang," 2019, <https://www.liputan6.com/bisnis/read/4049769/bus-listrik-transjakarta-sudah-angkut-14-ribu-penumpang#>.

63 Juwita Trisna Rahayu, "Kemhub Akan Gunakan Bus Listrik Untuk Beli Jasa 2021," August 28, 2019, <https://www.antaraneews.com/berita/1034128/kemhub-akan-gunakan-bus-listrik-untuk-beli-jasa-2021>.

Initiatives by the private sector

The business sector is also advancing EV adoption. One taxi company, Blue Bird, introduced BEV taxis to the streets of Jakarta starting in 2019 and by January 2020 was operating 29 BEV taxis. The company plans to add 200 BEV taxis in 2020 in a second phase,⁶⁴ and to procure another 2,000 EVs for the third phase.⁶⁵ Meanwhile, tech companies Gojek Indonesia and Grab Indonesia, which provide ride-hailing services, have also expressed readiness to use BEVs.⁶⁶ Grab Indonesia claims that as of November 2020, it had deployed 5,000 EVs consisting of two-wheelers, e-scooters and electric taxis.⁶⁷ Finally, DAMRI, the oldest state-owned public transport operator, plans to replace 500 old diesel buses with EV models, with investment of US\$ 150 million.⁶⁸ The banking sector is also involved in the EV initiative: *Bank Rakyat Indonesia* (BRI) provides a special credit program for electric vehicles at competitive interest rates (3.8% annually) for a 6-year period.⁶⁹

KEY ACTORS FOR EV UPTAKE AND FE IMPROVEMENT IN INDONESIA

Our review of government documents relevant to clean transportation, and of the regulatory activities they govern, identifies 11 stakeholders with the potential to accelerate uptake of EVs in Indonesia. They are listed in Table 7.

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- 64 Bisnis.com, "Bluebird Akan Menambah 200 Unit Armada Taksi Listrik Tahun Ini," January 2, 2020, <https://otomotif.tempo.co/read/1290186/blue-bird-akan-menambah-200-unit-armada-taksi-listrik-tahun-ini/full&view=ok>.
- 65 Leo Harwidono, "Electric Vehicle Project Team - Blue Bird Group," presentation, Indonesia Electrification Workshop organized by ICCT, October 1, 2020.
- 66 Rinaldi Mohammad Azka, "4 Operator Transportasi Komitmen Pakai Kendaraan Listrik, Siapa Saja Mereka," September 4, 2019, <https://ekonomi.bisnis.com/read/20190904/98/1144333/4-operator-transportasi-komitmen-pakai-kendaraan-listrik-siapa-saja-mereka>.
- 67 Rully Kurniawan, "Grab Indonesia Klaim Sudah Operasikan 5.000 Kendaraan Listrik," April 11, 2020, <https://otomotif.kompas.com/read/2020/11/04/140206115/grab-indonesia-klaim-sudah-operasikan-5000-kendaraan-listrik>.
- 68 Rinaldi Mohammad Azka, "DAMRI Siapkan US\$15 Juta untuk Beli 500 Bus Listrik", July 2019, <https://ekonomi.bisnis.com/read/20190725/98/1128918/damri-siapkan-us150-juta-untuk-beli-500-bus-listrik>.
- 69 Rahajeng Kusumo Hastuti, "Dukung Motor Listrik PLN, BRI siapkan Skim Kredit Khusus," December 6, 2019, <https://www.cnbcindonesia.com/market/20191206124304-17-120932/dukung-motor-listrik-pln-bri-siapkan-skim-kredit-khusus>.

Table 7. List of key actors for EV uptake and FE Improvement in Indonesia

Stakeholders	Role/function
The President	Guide the promotion of EVs, as occurred in issuing Presidential Regulation No. 55/2019
Coordinating Ministry for Maritime and Investment Affairs	Take a leading role in the coordinating committee set up by the Presidential Regulation
Ministry of Industry	Develop industry roadmap and technical specification for vehicle industry, low carbon vehicles, EVs, EV components, and infrastructure
Ministry of Finance	Formulate fiscal incentives for EVs and low carbon vehicles, and incorporate EVs into the procurement catalogue for operational vehicles of various government agencies
Ministry of Energy and Mineral Resources	Regulate energy policy related to EVs
State-Owned Electric Company (PLN)	Develop charging infrastructure regulations for EVs and develop roadmaps for deployment of charging stations
Agency for Technology Assessment and Application (BPPT)	Lead the assessment of various innovative technologies related to EV supporting infrastructure
Ministry of Environment and Forestry	Establish emission standards for vehicles and power plants and monitor the environmental dimension of used battery recycling
Ministry of Trade	Determine import duty incentives
Ministry of Transport	Conduct and monitor vehicle type approval and roadworthiness, and retrofitting of conventional engines into electric ones
Ministry of Interior	Provide guidance for local governments on incentives and privileges for EV users
Police Corps	Provide special identification plates/signs for EVs and manage EV registration information
Automotive industry and its association	Design, manufacture, and distribute EVs to end users
Local governments	Develop and coordinate initiatives to promote the uptake of EVs within their jurisdiction
Civil society, university research centers and development partners	Collaborate with the government to support all relevant aspects of EV adoption

CONCLUSION

This briefing reviews key strategic documents, policies, and stakeholders with a role in improving vehicle fuel efficiency and promoting EVs in Indonesia. Actions taken by the Indonesian government are inspiring, even as the limitations of existing regulations reveal opportunities for further policy development. The following lessons can help to advance policies favoring cleaner vehicles:

A clear GHG reduction policy framework for the transportation sector is missing. The government of Indonesia has issued several strategic documents and guidance on climate change mitigation, energy efficiency improvement, and sustainable and low carbon development, which provide aspirational targets and measures. However, there is a need for enforceable GHG reduction targets and policy frameworks to drive the decarbonization of the transportation sector.

A clear EV development roadmap and a series of strong policies are needed to convert the strategic guidance in Presidential Regulation No.55/2019 into real action. To effectively bring the battery electric vehicle industry to scale, a comprehensive policy

package should include but not be limited to a clear and feasible EV development roadmap, a set of technical standards for EV and infrastructures, policies for setting incentives for EV purchase and manufacturing, infrastructure deployment schedules, a fleet transition strategy, and public awareness campaigns. Some initiatives are underway, including EV and charging infrastructure roadmap and technical standards, but more actions and policies are needed to ensure that existing and upcoming regulations are enforceable and follow global best practices.

Developing targeted and effective policies are key to promotion of advanced efficiency and low-emission technologies on vehicles. In the absence of strong policies, fuel efficiency/CO₂ emission standards or well-designed fiscal policies will be needed to accelerate the transition to a low-carbon fleet in Indonesia, starting with light-duty vehicles and two- and three-wheelers. For example, GOI would do well to establish a vehicle labeling program that discloses fuel efficiency information;⁷⁰ set fleet average CO₂ emission standards to introduce efficiency technologies into newly produced or imported vehicles and to accelerate the electrification of the fleet;⁷¹ establish a more linear luxury tax system and LCGC/LCEV program based entirely on CO₂ emissions to provide consistent incentives to promote efficiency technologies; and establish a zero-emission mandate program to require a minimum level of EV penetration in newly manufactured vehicles.⁷²

Leadership from the local government will play an important role in accelerating EV uptake. The national government can select five to ten cities with the will and capacity to electrify their vehicle fleets, and prioritize supporting electrification in these pilot cities. There are cities, such as Jakarta and Bali, that have demonstrated such leadership. The national government through the Interior Ministry could help to set guidance in order to assist local governments in promoting EV within their domain. Experience from local pilot projects will in turn provide examples to support expanded practices at the national level.

Private sector and finance sector engagement will smooth and accelerate the transition process. The private sector and the finance sector have already shown interest in supporting the transition to electric vehicles in Indonesia, and therefore can be encouraged to continue to highlight cases for electrification.

Given that Indonesia still lags on vehicle efficiency improvement and electrification compared with leading markets, the government should introduce efficient and low-emission vehicles aggressively, and push for accelerated uptake of EVs. The efforts suggested above will require collaboration and cooperation among key stakeholders to generate the political will and regulatory support needed for the transition to a carbon-neutral transport sector in Indonesia.

70 Zifei Yang, Lin Zhu, and Anup Bandivadekar, *Review and evaluation of vehicle fuel efficiency labeling and consumer information programs*. (ICCT: Washington, DC, 2016), <https://theicct.org/publications/review-and-evaluation-vehicle-fuel-efficiency-labeling-and-consumer-information>.

71 Uwe Tietge, Peter Mock, Jan Dornoff, *CO₂ emissions from new passenger cars in Europe: Car manufacturers' performance in 2019*, (ICCT: Washington, DC, 2020), <https://theicct.org/publications/co2-new-passenger-cars-europe-aug2020>.

72 Shikha Rokadiya Shikha Rokadiya and Zifei Yang, *Overview of global zero-emission vehicle mandate programs*. (ICCT: Washington, DC, 2019), <https://theicct.org/publications/global-zero-emission-vehicle-mandate-program>.