CLEAN AIR REGULATION 2014 (CAR2014)

- Updates and Clarification for Non-compliance Generators

14 May 2025
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Background

- In 2019, License to Contravene (LTC) has been granted by Kementerian Alam Sekitar dan Air (KASA) to generators that are operating before CAR2014 and unable to comply with the CAR2014.

- The exemption of LTCs valid for a period of for 5 years, from 5 June 2019 to 5 June 2024.

- A few generators have submitted requests for further LTC from June 2024 onwards (ie. KEV, SJ Gelugor). As of now, the Department of Environment (JAS) is still in the process of considering and approving the LTC applications.

- Following the latest updates received from the existing coal and gas generators, below is the summary of the current compliance status:

  i. 12 out of 20 generators are fully compliant with CAR2014 at all times.

  ii. 7 out of 20 generators have partial compliance, with restrictions occurring only under specific conditions *(i.e. during start up, fuel changeover, part load etc.)*

  iii. 1 out of 20 generators is unable to comply with CAR2014, even at normal operation *(KEV)*

Outline

1. Overview of Generators' Compliance with CAR2014
2. Change in Law provisions under the Power Purchase Agreements ("PPAs) and Service Level Agreements ("SLAs")
3. Estimated total Environmental Charges for KEV based on CY2024 Data
4. Impact assessment on the application of Environmental Charges
5. Discuss the way forward on CAR2014

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1 OVERVIEW OF GENERATORS' COMPLIANCE WITH CAR2014

1.1 12 generators are fully compliant with CAR2014 at all times

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No.	Generator	Type	PPA/SLA Expiry	Comply to CAR2014? (Yes/No)
1	TNB Janamanjung GF1	Coal	31 Aug 2030	Yes
2	Manjung 4	Coal	13 Apr 2040	Yes
3	Tanjung Bin Power	Coal	27 Sept 2031	Yes
4	Tanjung Bin Energy	Coal	20 Mar 2041	Yes
5	Prai Power	Gas	5 Sept 2025	Yes
6	Jimah East Power	Coal	21 Aug 2044	Yes
7	TNB Prai	Gas	19 Feb 2037	Yes
8	Southern Power Generation	Gas	31 Dec 2041	Yes
9	Tuanku Jaafar Power Station (PD1)	Gas	31 Aug 2028	Yes
10	Tuanku Jaafar Power Station (PD2)	Gas	23 Jan 2030	Yes
11	Pengerang	Gas	20 Oct 2038	Yes
12	Pulau Indah Power Plant	Gas	28 Feb 2046	Yes

1.2 7 generators have partial compliance - *with restrictions occurring only under specific conditions*

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No.	Generator	Type	PPA/SLA Expiry	Comply to CAR2014? (Yes/No)	Which emission exceeds CAR2014 limits (SOx/NOx/particulate matters etc.)	Which conditions the generator is unable to comply
1	Manjung 5	Coal	27 Sept 2042	Yes	CO SO2	• **CO**: During Pulverizer changeover activity, normally CO will spike during purging the remaining fuel inside the Pulverizer. This condition usually not last more than 2hours. • **SO2**: During coal transition from normal sulphur content to higher sulphur content. This transition time may takes sometimes from Operator to manage and bring down the SO2 below the limit. Load deration is necessary if there are no any action can be done at the same load. This condition may last 4-8hours duration.
2	Edra Energy	Gas	15 Dec 2042	Yes	CO NOx	• During fuel change over period
3	Jimah Energy Ventures	Coal	31 Dec 2033	Yes	SOx NOx CO	• During start up
4	KLPP	Gas	22 Feb 2026	Yes	CO NOx	• During gas fuel operations below 53% relative load • During distillate despatch

1.2 7 generators have partial compliance - *with restrictions occurring only under specific conditions*

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No.	Generator	Type	PPA/SLA Expiry	Comply to CAR 2014? (Yes/No)	Which emission exceeds CAR2014 limits (SOx/NOx/particulate matters etc.)	Which conditions the generator is unable to comply
5	Panglima Power	Gas	14 Sept 2025	Yes	CO NOx	• During start up & shut down • During fuel change over
6	Segari Energy Ventures	Gas	30 June 2027	Yes	SOx NOx	• Part load Operation (CO emission exceed limit): It was agreed previously with GSO, SB & EC that SEV will not operate at part load (<100MW) when dispatched. Currently SEV do not run/dispatched at part load. • Distillate Operation (NOx emission exceed limit): It was decided during a meeting with MESTECC, SB, EC, GSO and DOE on 17 May 2019 that compliance is exempted during this condition due to operation during emergency and for a short period of time only.
7	TNB CBPS	Gas	26 Feb 2037	Yes	CO NOx	• During start up but will return to below CAR2014 limit once combined cycle mode is achieved

1.3 1 generator is unable to comply with CAR2014 even at normal operation

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No.	Generator	Type	PPA/SLA Expiry	Comply to CAR 2014? (Yes/No)	Which emission exceeds CAR2014 limits (SOx/NOx/particulate matters etc.)	Which conditions the generator is unable to comply
1	Kapar Energy Ventures (GF2 & GF3)	Coal	8 Jul 2029	No	SOx NOx CO Particulate matter	• **During Fuel Oil Operation** Unit 1 & Unit 2 – SOx, NOx and Particulate matter : Does not comply • **During Coal operation** Unit 3, 4, 5 & 6 – SOx exceed 500mg/m3 : Does not comply Unit 5 & 6 - Particulate matter exceed 50mg/m3 : Does not comply • **During partial load operation - MFO and Coal** Unit 1, 2, 3, 4, 5 and 6 : Does not comply for SOx
	Kapar Energy Ventures (GF1)	Gas	8 Jul 2029	No		

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2 CHANGE IN LAW PROVISIONS UNDER THE PPAs and SLAs

2 Change in Law provisions under the PPAs and SLAs for the existing coal and gas generators

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	Capital Improvement Cost		Change in Operating Cost	
PPA/SLA	**Capital Improvement Threshold**	**Method of Adjustment if the Cost Exceeds the Threshold**	**Operating Cost Threshold**	**Method of Adjustment if the Cost Exceeds the Threshold**
KEV	Dividing ; 1. The product of (x) RM 5mil and (y) the Consumer Price Index (CPI) as at the first day of Contract Year in which the Change in Law occurred; and 2. The CPI as at the Effective Date.	Adjustment to Capacity Rate Financial (CRF)	Dividing; 1. The product of (x) RM 1 mil. and (y) the CPI as at the first day of the prevailing Contract Year; and 2. The CPI as at the Effective Date.	1. Adjustment to Fixed Operating Rate (FOR) and/or 2. Adjustment to Variable Operating Rate (VOR)
Others	RM 10 mil	1. Extension of Term; or 2. Adjustment to CRF	N/A	N/A

i. Modification costs are classified as capital improvement costs, while the implementation of Environmental Charges is considered as change in operating costs.

ii. For other generators, there will be no pass-through mechanism for these charges.

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3 ESTIMATED TOTAL ENVIRONMENTAL CHARGES FOR KEV BASED ON CY2024 DATA

3 Estimated total Environmental Charges for KEV based on 2024 Data *(prepared by TNB GENCO)*

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Environmental Charges Timeline : Case Study of KEV Sdn. Bhd.

KAPAR ENERGY VENTURE SDN. BHD.

ENVIRONMENTAL CHARGES COST BASED ON TIER AND YEAR ON YEAR UNTIL PLANT RETIREMENT

PLANT RETIREMENT : JULY 2029

Tier	Licence To Contravene Issuance Year	GF1	GF2	GF3	TOTAL ENVIRONMENTAL CHARGES (RM / YEAR)
Tier 1, Year 1 (1-2 years)	FY2025/2026	1,271,807.00	10,122,538.00	10,951,539.00	**22,345,884.00**
Tier 1, Year 2 (1-2 years)	FY2026/2027	-	4,524,025.00	3,838,237.00	**8,362,262.00**
Tier 2, Year 3 (3-4 years)	FY2027/2028	-	4,955,005.00	3,893,832.00	**8,848,837.00**
Tier 2, Year 4 (3-4 years)	FY2028/2029	-	5,302,886.00	4,482,766.00	**9,785,652.00**
				Total Fees From Year 2025-2029 (RM)	**49,342,635.00**

DISCLAIMER:

The following assumptions are used by the TPGSB team to forecast environmental charge data :

1. Based on verbal information from the DOE, environmental charges may take effect as early as June 2025, unless stated otherwise by the DOE; and
2. The environmental charges for **Tier 1, Year 1 (FY2025/2026)** will be calculated based on actual data from the previous year, covering **January 1, 2024 – December 31, 2024**; and
3. or **simulation purposes**, projected data provided by GSO will be used for **Tier 1 (2026/2027)** and subsequent tiers/years. Each tier will continue to follow the **January 1 – December 31** timeframe from the previous year's data unless advised otherwise by the DOE; and

Additionally;

1. **GF1 (Units 1 & 2)** is expected to remain non-operational until the end of the SLA; and
2. **LTC emission limit values** will remain unchanged for all plants until 2029

Abbreviation: CAR: Clean Air Regulations | DOE: Department of Environment |FY: Financial Year | GF: Generating Facility | LTC: License to Contravene | KEV: Kapar Energy Venture | RM: Ringgit Malaysia | TPGSB: TNB Power Generation Sdn. Bhd. |Y: Year

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4 IMPACT ASSESSMENT ON THE APPLICATION OF ENVIRONMENTAL CHARGES

4 Potential impacts on the application of Environmental Charges

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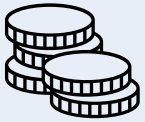
Financial impact



Generators may potentially face increased operating costs due to the implementation of Environmental Charges, which could lead to financial losses in the absence of a cost recovery or pass-through mechanism

Operational impact

In response to increased operating costs and the absence of a cost recovery mechanism, generators may be compelled to reduce their generation load or consider proposing early retirement of their facilities. Such actions could have implications for overall grid reliability and long-term energy planning.

Tariff impact

An increase in electricity generation costs which driven by factors such as environmental compliance, fuel price volatility or capital improvements, could indirectly impact the end-user tariffs.

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5 WAY FORWARD

5 Way Forward

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1. To consider on LTC extension

- JAS to consider LTC extension as per current rate
- The cost of capital improvement (facility modification) and Environmental charges are significantly higher than LTC

2. To balance cost impact and environmental responsibility

- Discounted Environmental Charges

3. To prioritize industry financial stability and electricity affordability

- A waiver might be considered

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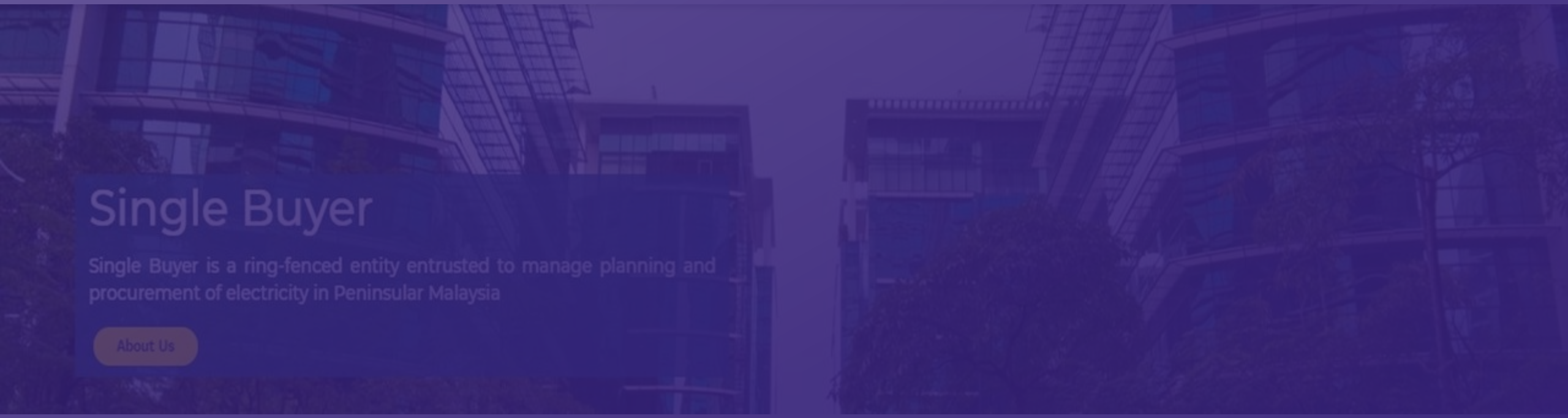

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