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Regulatory Period (RP4) for Tenaga Nasional Berhad (TNB) January 2025 to December 2027 under the Incentive-Based Regulation (IBR) Framework

Malaysia's Electricity Tariffs Reform

9 July 2025

Evolution of electricity tariffs in Peninsular Malaysia

Before 2014 (without Incentive-based Regulation (IBR))

1997	• Domestic tariff structured in 2 blocks • Special Industrial Tariff (SIT) introduced for selected industries
2006	• Domestic structure revised to 3 blocks • Introduction of fuel cost adjustment mechanism • Special agriculture tariff introduced
2008	• Tiered tariff structure implemented for domestic users: ○ Stage 1 (<400 kWh): 2 blocks ○ Stage 2 (>400 kWh): 6 blocks
2011	• Consolidation into a single-stage, 9-block progressive (domestic) tariff • Introduction of Feed-in Tariff (FiT)
2014	• Reduction and simplification of domestic tariff blocks • Transition to Incentive-based Regulation (IBR)

Tariff Transition Under IBR

- Shift to cost-reflective tariffs
- Introduction of Regulatory Periods (RP) and Imbalance Cost Pass-Through (ICPT)
- Greater transparency and regulatory oversight

After 2014 (with Incentive-based Regulation (IBR))

2015	• Regulatory Period 1 (RP1) begins
2016	• SIT phase-out (2016–2020) • Introduction of the Enhanced Time-of-Use (ETOU) tariff
2017	• Introduction of the Net Energy Metering (NEM)
2018	• Regulatory Period 2 (RP2) begins • Basic average tariff increased, but existing schedule retained
2020	• Proposed tariff structure reform postponed
2021	• An extension of RP2, treated as an interim regulatory year due to the COVID-19 pandemic uncertainties
2022	• Regulatory Period 3 (RP3) begins
2025	• **Regulatory Period 4 (RP4) begins in 2H** • **Restructure domestic and non-domestic categories based on voltage level usage** • **Restructure Time-of-Use (ToU)** • **Replaces ICPT with Automatic Fuel Adjustment (AFA)**

Source: Energy Commission

Determination of electricity tariffs in Peninsular Malaysia on the IBR framework since 2014

Basic Tariff

Adjustments for every 3 years

Average Basic Tariff (sen/kWh)

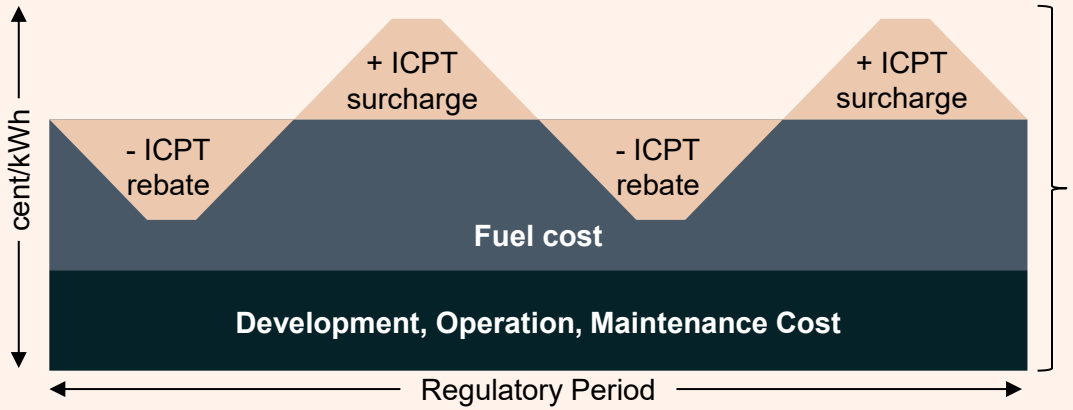
Cost (RM) ÷ **Demand (kWh)**

Several components: operating expenses, depreciation, fuel cost, return on assets, other costs adjustment

Based on the approval of the Planning and Implementation Committee for Electricity Supply and Tariff (JPPPET)

ICPT

Adjustments for every 6 months



Actual costs

If actual costs > average basic tariff, **a surcharge will be levied**.

If actual costs < average basic tariff, **a rebate will be given**.

Source: Energy Commission

Limitations and critiques of the current tariff system

Limitations

1. Volumetric-based Tariffs

Electricity pricing structures where customers are charged based on the total amount (volume) of electricity they consume, measured in kilowatt-hours (kWh).

- Significant fixed costs for infrastructure and power plant maintenance are incurred regardless of electricity consumption, and these costs must be recovered through user charges, often necessitating higher prices or specific tariffs to ensure financial viability.
- A user consuming a lot during peak hours pays the same energy charges per kWh as one who spreads usage evenly.
- High users may subsidise low users or vice versa, depending on how tiered-blocks are designed and priced.
- Utilities service provider lose revenue when people save electricity, unless tariffs include fixed or capacity components.

Critiques

1. Inaccurate Cost Reflection

Many businesses argue that the current tariff adjustments do not accurately reflect the true underlying costs. Without providing complete data, it becomes challenging to verify whether the adjustments are fair and truly cost-reflective.

2. Data Transparency and Timeliness

Absence of regularly updated and publicly accessible information constrain businesses' effective planning. Timely and detailed data is essential for predicting future electricity costs and for making informed operational decisions.

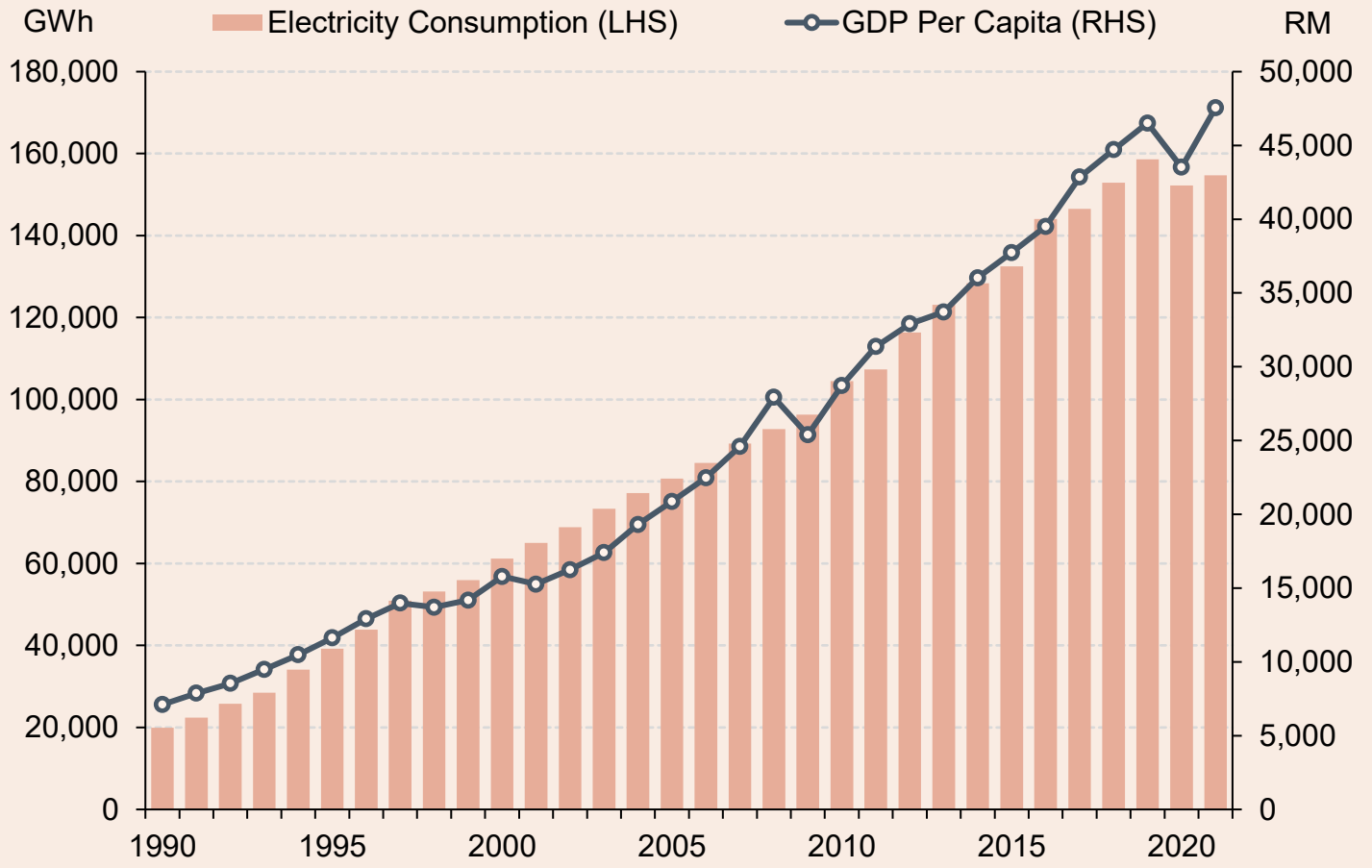
3. Inequitable Allocation of Fuel Cost Adjustments

How the fuel cost adjustments are distributed across different user categories – domestic, commercial, and industrial. What is the electricity subsidy for each category?

Electricity is the engine of economic growth

- Electricity is a crucial input for modern and green production, especially for those still using fossil fuel to power their machinery (i.e., mining).
- Many studies reveal bidirectional causality between electricity usage and economic development – growth in one often drives the other.
- In Malaysia, a nearly perfect positive linear correlation (0.99) between electricity consumption and GDP per capita.
- Micro, small and medium enterprises (MSMEs) made up 96.1% of total business establishments in 2024, with a majority of MSMEs in the service sector (81.1% in 2024).
- The manufacturing sector remains a significant contributor to the economy (2024: 23.1% of GDP, 85.5% of total merchandise exports, and 17.8% of total employment).

Malaysia's Electricity Consumption vs. GDP Per Capita, 1990-2021



Source: Energy Commission

The burden of electricity tariff on businesses

Depending on the operation size and industry subsector, **electricity cost constitutes between 1% and 10% of monthly overheads for a general business**.

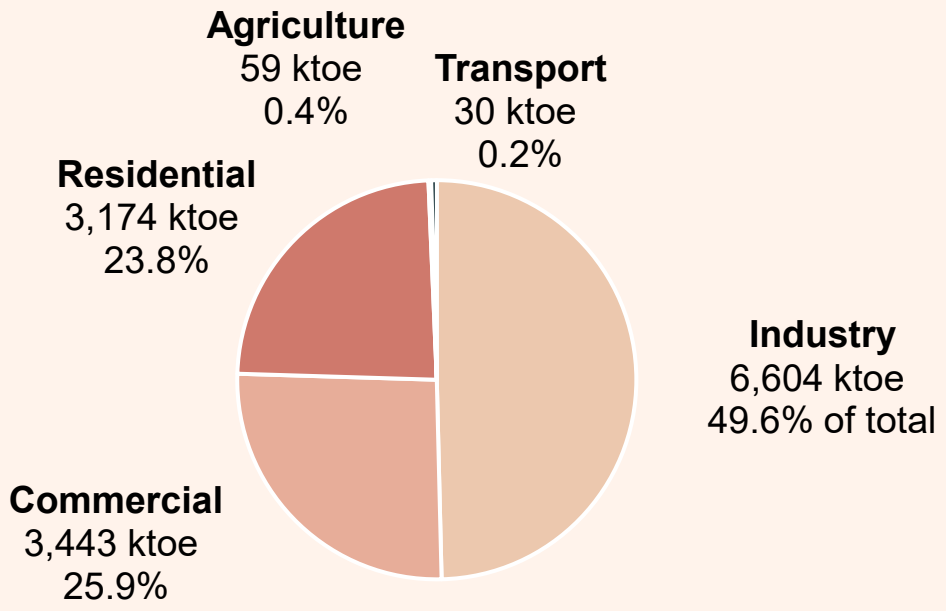
 # Percentage Share of Electricity Cost in Business Operations

Industry/Company	% Share (Approximately)
Plastic Manufacturing	5.0%
Flour Manufacturing	30.0% - 38.0%
Semiconductor	15.0%
Iron and Steel Industry – Upstream	8.66% - 15.0%*
Iron and Steel Industry – Downstream (Pipes)	15.0%
Rubber Gloves	4.0% - 5.0%
Office	1.9%
Optical Retail Chain Store	0.7%

Source: SERC's own compilation
Note: Electricity consumption can be varied depending on the types of technologies and adoption of renewable energy in the current state.
*For the upstream in the iron and steel industry, electricity costs in those industries with EAF technology accounted for around 15% of operating costs, which seems low due to the significance of their raw materials cost (accounted for 70%).

- **The industrial sector has the most significant share of electricity consumption (49.6% in 2021).**
- An increase in electricity tariff would disproportionately impact the energy-intensive sectors and place an additional burden on MSMEs.

Final Electricity Consumption by Sectors in Malaysia (2021)



Source: Energy Commission

Key changes in the electricity market reform (2H 2025)

1 Tariff schedule restructuring

A. Classifying customer categories according to voltage level

- Domestic
- Low Voltage
- Medium Voltage
- High Voltage

Others

B. Different charges

- Energy Charge
- Capacity Charge
- Network Charge
- Retail Charge

2 Revised Time-of-Use (ToU)

A. Revision

Weekday (excl. 15 public holidays)

Peak: 2 pm – 10 pm (8 hrs)

Old: 8 am – 10 pm (14 hrs)

Off-peak: 10pm – 2 pm (16 hrs)

Old: 10 pm – 8 am (10 hrs)

Weekend

Off-peak: 12 am – 12 am (24 hrs)

Old: 10 pm – 8 am (10 hrs)

B. Introduction of Energy Efficient Incentive

Beneficiary:

- Domestic ≤ 1,000 kWh
- Low Voltage ≤ 200 kWh

C. Periodically review of the peak period as peak demand shifts towards evening hours.

3 Automatic Fuel Adjustment

A. Replacing ICPT with Automatic Fuel Adjustment (AFA)

Periodicity	Every month
Price signal	Strong
Bill impact	Low bill shock
Approval	1. Automatic adjustment 2. Government's approval
Exemption	**Domestic consumers consuming ≤600kWh per month**

B. AFA sets at 0 sen/kWh for the period of 1 Jul 2025 to 31 Jul 2025

Note: The 10% electricity bill rebate for selected organisations, such as higher learning institutions, public and semi-public schools, welfare centres and houses of worship, and electricity bill rebate RM40/month will continue.

Source: Energy Commission

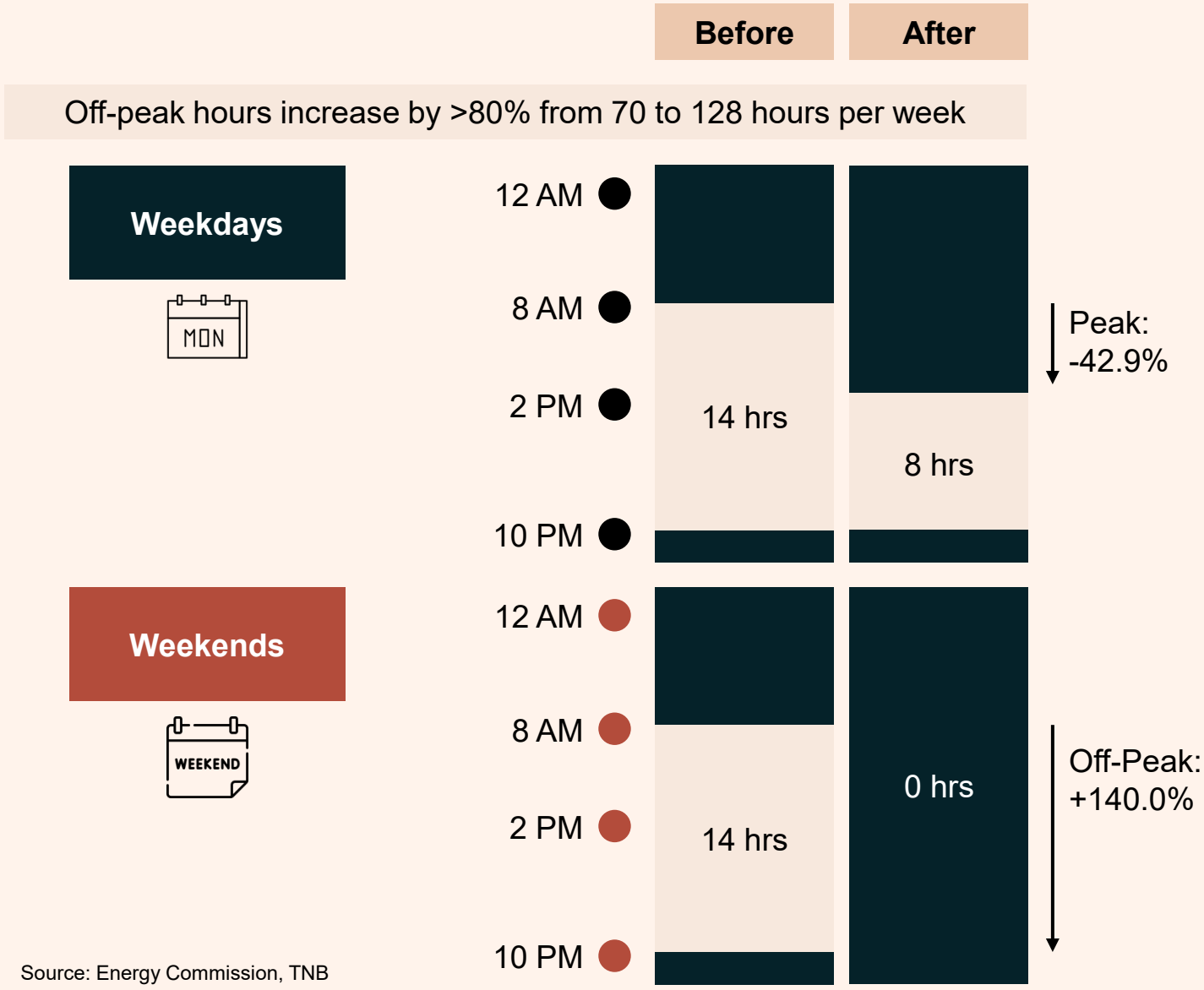
Review of tariff categories based on supply voltage levels

	Low Voltage		Medium Voltage	High Voltage
OLD **Regulatory Period 3 (2022 – 2024)**	Domestics Band 1 (0 – 200) Band 2 (201 – 300) Band 3 (301 – 600) Band 4 (601 – 900) Band 5 (> 900)	Commercial	Commercial	Industry
		Industry	Industry	(Others)
		Agriculture	Agriculture	
		Mining	Mining	
			(Others)	
NEW **Regulatory Period 4 (2025 – 2027)**	Domestic	Non-domestic	Non-domestic	Non-domestic
		Agriculture and Water Operator & Sewage	Agriculture and Water Operator & Sewage	(Others)
		Streetlighting	(Others)	

Source: Energy Commission

Note: Refer to Appendix 1 for more information regarding the old and new electricity rate. Please also refer to TNB's tariff rate for other special users.

New features: Extended Time-of-Use (ToU) scheme



- Longer off-peak periods include Saturday and Sunday.
- Expansion of Domestic and Non-Domestic Low-Voltage customers, who have been installed with a Smart Meter and a Current Transformer (CT) meter or a Remote Meter Reading (RMR) meter.
- The ToU scheme is available as an optional plan for customers.
- For existing customers under the ToU Tariff C2, E2, F2, H2, C4 & E3, the transition to the new ToU scheme will be done automatically.

Source: Energy Commission, TNB

New features: Energy Efficiency Incentive

Energy Efficiency Incentives (EEI) channelled to targeted groups, encouraging energy conservation

- **For total consumption of 1,000 kWh and below per month**, Domestic customers are eligible for the Energy Efficiency Incentive, with the incentive rate (sen/kWh) varying based on usage. It rewards lower consumption with higher savings, with the rate diminishing as consumption goes higher.

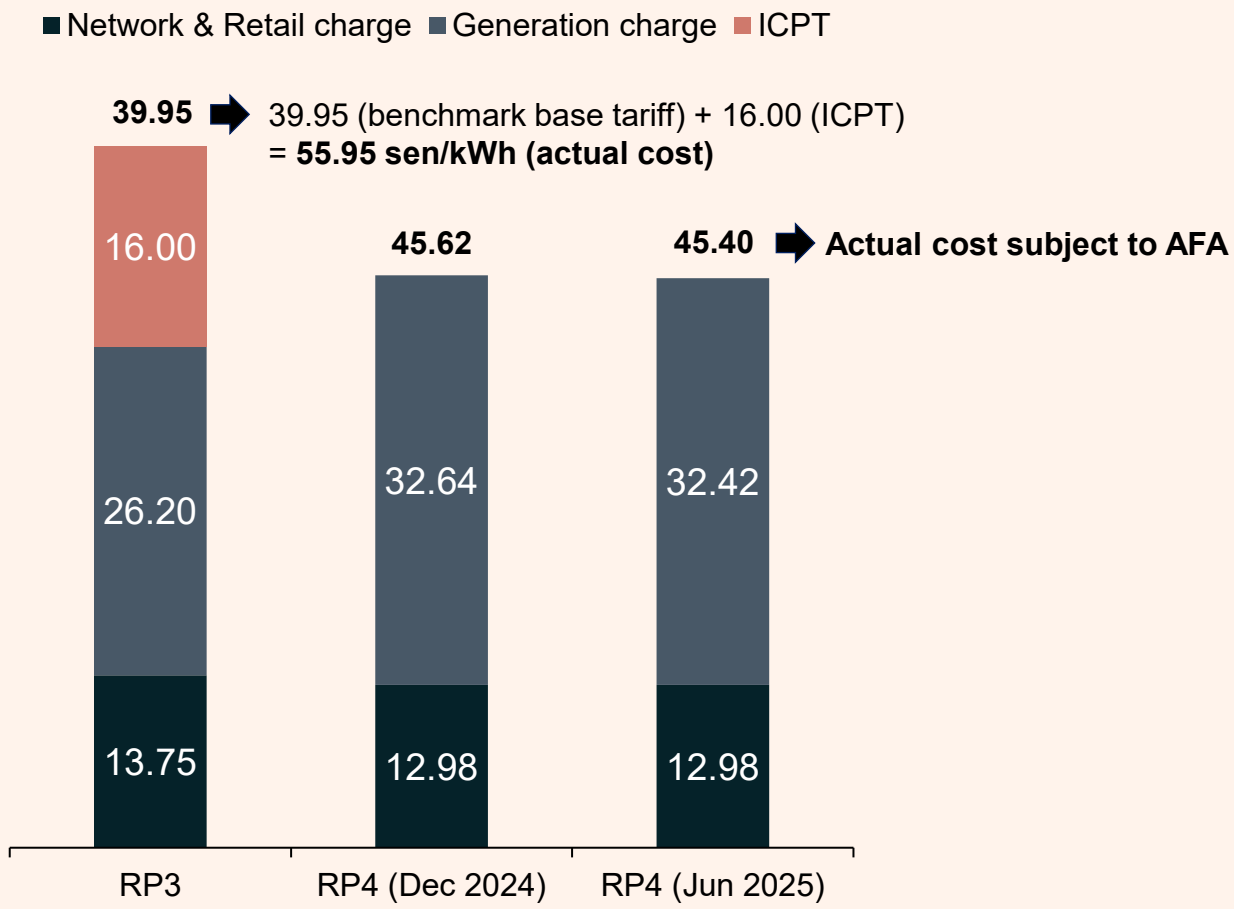
- **For total consumption of 200 kWh and below per month**, Non-Domestic Low-Voltage customers are eligible for the Energy Efficiency Incentive of **11 sen/kWh.**

For Domestic Users	Rate (sen/kWh)
1 – 200 kWh	25.00
201 – 250 kWh	24.50
251 – 300 kWh	22.50
301 – 350 kWh	21.00
351 – 400 kWh	17.00
401 – 450 kWh	14.50
451 – 500 kWh	12.00
501 – 550 kWh	10.50
551 – 600 kWh	9.00
601 – 650 kWh	7.50
651 – 700 kWh	5.50
701 – 750 kWh	4.50
751 – 800 kWh	4.00
801 – 850 kWh	2.50
851 – 900 kWh	1.00
901 – 1,000 kWh	0.50

Source: Energy Commission, TNB

New features: Automatic Fuel Adjustment (AFA) mechanism replaces ICPT

Average Base Tariff* in RP3 & 4 (sen/kWh)



**The average base tariff serves as a benchmark electricity rate set for a regulatory period, while actual fuel cost fluctuations are adjusted separately through the Imbalance Cost Pass-Through (ICPT) mechanism.*

Source: Energy Commission

- The Automatic Fuel Adjustment (AFA) rate for the period of 1 July 2025 to 31 July 2025 is **set at 0 sen/kWh.**
- AFA functions similarly to the previous Imbalance Cost Pass-Through (ICPT) mechanism, whereby adjustments to electricity tariffs are based on **fluctuations in fuel prices and exchange rates over a specific period**.
- AFA will be **automatically adjusted if the change falls within ±10% of the prevailing energy cost.** Any adjustment beyond this threshold will require approval from the Minister.

Main features:

- Monthly adjustments
- Reflect current market prices
- More accurate price indication

Benefits for all:

- More transparent adjustment rates to consumers
- Minimise sudden adjustment rates
- Promote energy efficiency

Cost comparison: Old and New

Category	Type	Previous bill (RM)		New bill (RM)
		Commercial	Industrial	
Low-voltage (LV) Assumptions: • Monthly consumption of 10,073.26 kWh • Mon-Fri from 8:30 am to 5:30 pm	General	5,466.27 (Tariff B)	N/A	5,206.81 (-4.7% vs. Tariff B)
	ToU	N/A		5,103.50 (-6.6% vs. Tariff B)
Low-voltage (LV) Assumptions: • Monthly consumption of 200,000 kWh • 24 hours in Mon-Sat	General	N/A	94,998.80 (Tariff D)	**103,001.76 (+8.4% vs. Tariff D)**
	ToU		N/A	**100,062.65 (+5.3% vs. Tariff D)**
Medium-voltage (MV) Assumptions: • Monthly consumption of 1,085,760 kWh • 24 hours in Mon-Sat	General	629,930.39 (Tariff C1)	597,805.20 (Tariff E1)	487,079.40 (-22.7% vs. Tariff C1; -18.5% vs. Tariff E1)
	ToU	591,285.41 (Tariff C2)	568,232.77 (Tariff E2)	484,895.06 (-18.0% vs. Tariff C2; -14.7% vs. Tariff E2)
High-voltage (HV) Assumptions: • Monthly consumption of 86,400,000 kWh • 24 hours in Mon-Sun	General	N/A	N/A	41,578,139.92 (-2.8% vs. Tariff E3)
	ToU		42,797,068.80 (Tariff E3)	41,832,757.65 (-2.3% vs. Tariff E3)

Incentive / Exemption

For Domestic User	Threshold
Energy Efficiency Incentive	≤ 1,000 kWh
Retail Charge Exemption	≤ 600 kWh
SST Exemption	≤ 600 kWh
RE Fund Exemption	≤ 300 kWh
Automatic Fuel Adjustment Exemption	≤ 600 kWh

For Non-Domestic Low-Voltage User	Threshold
Energy Efficiency Incentive	≤ 200 kWh

Note: Automatic Fuel Adjustment (AFA) set at 0 sen/kWh for all categories in the new bill.

Source: Energy Commission

SERC's commentaries

- Malaysia's electricity market has long faced criticism for its lack of transparency and non-cost-reflective pricing, particularly on how the fuel cost adjustments were determined through the Imbalance Cost Pass-Through (ICPT). Businesses, especially in the capital-intensive and high energy-intensive industries, have called for a tariff system that is more predictable, fairer, and aligned with current fuel costs and market dynamics.
- The ICPT, which was designed to reflect fuel price changes, has faced scrutiny due to its semi-annual adjustment cycle, opaque calculation methodology, and limited public disclosure, leading to concerns about its transparency. In particular, a wide disparity between ICPT rates for low- and high-voltage users, up to 13 sen/kWh in 1H 2025 and 2H 2024, raised concerns about cross-subsidisation and the unequal treatment of industrial consumers, undermining cost fairness and market neutrality.
- The replacement of ICPT with the **Automatic Fuel Adjustment (AFA) mechanism** in 2H 2025, introducing monthly adjustments based on fluctuations in fuel prices and exchange rates, enhances pricing responsiveness and enables electricity tariffs to more accurately reflect current market conditions.
- **AFA also introduces a clear governance threshold**: if fuel cost fluctuations remain within ±10%, the AFA will be applied automatically; if fuel costs exceed 10%, it will be subject to the Minister's review and approval. This is a positive step towards improving accountability and stakeholder confidence.
- However, **critical questions remain surrounding its transparency of deriving the base tariff rate, fuel cost benchmarking, efficiency assumptions, and fuel mix references. The methodology of AFA and cost breakdown remain unavailable to the public, and hence, core transparency issues persist.**
- The reform also introduces a simplified tariff categorisation, grouping all non-domestic users by voltage level rather than business type. **Customers' energy bills will break down into four key components: energy charge, capacity charge, network charge, and retail charge.** This new structure aims to provide a more accurate reflection of the costs involved in delivering electricity, aligning with international best practices and enabling more granular cost management.

SERC's commentaries (cont.)

- Following an increase of 13.6% in the base electricity tariff to 45.40 sen/kWh under Regulatory Period 4 (RP4) from 39.95 sen/kWh in RP3, there are significant increases in energy charge rates for many non-domestic users, particularly those previously categorised as low-voltage industrial users, now ranging from 48.08-52.17 sen/kWh (inclusive of network and capacity charges) compared to 38.00-44.10 sen/kWh previously. **Our simulation estimates indicated that this would result in an increase of electricity bills between 5.3% and 8.4%.** [Please refer to Cost Comparison for the information on electricity costs under the old and new structures.]
- Additionally, **high-voltage users are now facing energy charge rates ranging 40.43-44.52 sen/kWh, a steep increase from the previous range of 20.20-33.70 sen/kWh**, which will dampen cost competitiveness of the energy-and capital-intensive export-oriented industries.
- The cost implications of this electricity tariffs reform would add financial burden on businesses. Business operating environment remains challenging. Businesses are already burdened with bunching and multiple operating expenses (higher minimum wages, higher inputs cost, e-invoicing compliance costs and the expanded SST) and would be laden by the rationalisation of the RON95 fuel subsidy, the employers' EPF contribution for foreign workers, and a multi-tiered foreign worker levy. Multiple cost increases would increase production and operating costs, and if businesses cannot absorb these expenses, they would pass on to consumers through increased prices for goods and services, ultimately fuelling inflationary pressures. For sectors like the manufacturing sector (which contributes 23.2% to GDP and accounts for nearly half of electricity use), any increase in electricity tariffs directly affects their cost competitiveness. Similarly, MSMEs, which make up over 96% of total business establishments, could struggle to absorb additional cost burdens without better-targeted relief mechanisms.

SERC's commentaries (cont.)

Recommendations

Revise lower the electricity tariffs to ease the financial burden on non-domestic industries while safeguarding their competitiveness, especially for small and medium industrial users under low-voltage category, and high energy intensity exports-oriented industries, i.e. high-voltage users. Similarly, domestic services industries will also be impacted, in addition to the service tax on rental/leasing.

Reduce the energy charge rates for all users under TOU (off-peak period) category. It is observed that the electricity tariffs differential between peak and non-peak periods has reduced significantly to only 4.09 sen/kWh compared to between 13.50-14.10 sen/kWh previously. This diminished differential in electricity pricing between peak and off-peak hours can reduce the financial incentive for businesses to shift their energy consumption away from peak times, potentially hindering efforts to optimise energy demand and improve overall grid efficiency.

Review the energy charge rates for high-voltage users. It is also observed that **Malaysia's high-voltage users pay higher electricity tariffs than low-voltage users.** This diverges from the norm of tariffs structure in most regional countries, such as Indonesia, Thailand, Vietnam, and China, whereby high-voltage users generally benefit from lower electricity tariffs than low-voltage users, due to economies of scale and reduced transmission losses.

Increase the threshold for EEI. Currently, the targeted energy efficiency incentive is limited to low-voltage non-domestic users consuming less than 200 kWh per month has excluded many small businesses. It is proposed **to increase the eligibility threshold to at least 600 kWh** to encourage broader energy savings among micro, small and medium enterprises (MSMEs).

More public disclosure on the computation of AFA and billing components. While a detailed itemised billing comprising energy charges, capacity charges, network charges, and retail charges will enhance transparency, it is crucial to publish clear information on how the base tariffs and billing components are derived, what detailed assumptions go into the AFA calculations, and how the EEI is derived as well as the distribution of subsidies across user groups

Conclusion

- It is commendable that the electricity market reform is a bold step towards transparency, energy sustainability, cost-reflective while encouraging energy efficiency. The introduction of AFA, simplification of tariff categories, and itemised charges were long-standing proposals from the industry groups to bring Malaysia closer to international norms.
- That said, more public disclosure is a must – publish clear information on how the base tariffs are derived, what assumptions go into AFA calculations, the structure and intended outcomes of the EEI, and the distribution of subsidies across user groups.
- The Energy Commission and relevant ministries should consider to broaden the eligibility of the EEI, especially for productive low-voltage users, and ensure regular updates on the impact and adjustments of AFA.
- As the energy market moves toward liberalisation under MESI 2.0, these reforms must strike a balance between cost sustainability, fairness, and economic competitiveness. Transparent, equitable pricing, backed by clear communication and robust data, is not just a regulatory necessity but a strategic imperative for industrial resilience and sustainable development.

Appendix 1: Tariff rates by category: Before and after

Old Structure

Domestic Tariff	Rate
For the first 200 kWh (1 - 200 kWh)	21.80 sen/kWh
For the next 100 kWh (201 - 300 kWh)	33.40 sen/kWh
For the next 300 kWh (301 - 600 kWh)	51.60 sen/kWh
For the next 300 kWh (601 - 900 kWh)	54.60 sen/kWh
For the next kWh (901 kWh onwards)	57.10 sen/kWh

New Structure

Domestic Tariff (General)	Rate
Energy Charge - For Users ≤1500 kWh	27.03 sen/kWh
Energy Charge - For Users >1500 kWh	37.03 sen/kWh
Capacity Charge - For all kWh	4.55 sen/kWh
Network Charge - For all kWh	12.85 sen/kWh
Retail Charge	RM10

Domestic Tariff (ToU)	Rate
Energy Charge (≤1500 kWh current period peak)	28.52 sen/kWh
Energy Charge (≤1500 kWh current period outside peak)	24.43 sen/kWh
Energy Charge (>1500 kWh current period peak)	38.52 sen/kWh
Energy Charge (>1500 kWh current period outside peak)	34.43 sen/kWh
Capacity Charge - For all kWh	4.55 sen/kWh
Network Charge - For all kWh	12.85 sen/kWh
Retail Charge	RM10

Source: Energy Commission

Note: User with usage 600 kWh and to bottom excluded from retail charge

Appendix 1: Tariff rates by category: Before and after (cont.)

Old Structure

Low Voltage Commercial Tariff (General)	Rate
For the first 200 kWh (1 -200 kWh) per month	43.50 sen/kWh
For the next kWh (201 kWh onwards) per month	50.90 sen/kWh

Low Voltage Industrial Tariff (General)	Rate
For the first 200 kWh (1-200 kWh) per month	38.00 sen/kWh
For the next kWh (201 kWh onwards) per month	44.10 sen/kWh

New Structure

Voltage Low (General)	Rate
Energy Charge - For all kWh	27.03 sen/kWh
Capacity Charge - For all kWh	8.83 sen/kWh
Network Charge - For all kWh	14.82 sen/kWh
Retail Charge	RM20

Voltage Low (ToU)	Rate
Energy Charge - For all kWh current period peak	28.52 sen/kWh
Energy Charge - For all Current kWh period outside peak	24.43 sen/kWh
Capacity Charge - For all kWh	8.83 sen/kWh
Network Charge - For all kWh	14.82 sen/kWh
Retail Charge	RM20

Source: Energy Commission

Appendix 1: Tariff rates by category: Before and after (cont.)

Old Structure

Medium Voltage Commercial Tariff (General)	Rate
For all kWh	36.50 sen/kWh
For each kilowatt of maximum demand per month	RM30.30

Medium Voltage Commercial Tariff (ToU)	Rate
For all kWh during the peak period	36.50 sen/kWh
For all kWh during the off-peak period	22.40 sen/kWh
For each kilowatt of maximum demand during peak period	RM45.10

Medium Voltage Industrial Tariff (General)	Rate
For all kWh	33.70 sen/kWh
For each kilowatt of maximum demand per month	RM29.60

Medium Voltage Industrial Tariff (ToU)	Rate
For all kWh during the peak period	35.50 sen/kWh
For all kWh during the off-peak period	21.90 sen/kWh
For each kilowatt of maximum demand during peak period	RM37.00

New Structure

Voltage Medium (General)	Rate
Energy Charge - For all kWh	29.83 sen/kWh
Capacity Charge - Every kilowatt request maximum a month	RM29.43
Network Charge - Every kilowatt request maximum a month	RM59.84
Retail Charge	RM200

Voltage Medium (ToU)	Rate
Energy Charge - For all kWh current period peak	31.32 sen/kWh
Energy Charge - For all Current kWh period outside peak	27.23 sen/kWh
Capacity Charge - Every kilowatt request maximum a month current period peak	RM30.19
Network Charge - Every kilowatt request maximum a month current period peak	RM66.87
Retail Charge	RM200

Source: Energy Commission

Appendix 1: Tariff rates by category: Before and after (cont.)

Old Structure

High Voltage Industrial Tariff (ToU)	Rate
For all kWh during the peak period	33.70 sen/kWh
For all kWh during the off-peak period	20.20 sen/kWh
For each kilowatt of maximum demand during peak period	RM35.50

New Structure

Voltage High (General)	Rate
Energy Charge - For all kWh	43.03 sen/kWh
Capacity Charge - Every kilowatt request maximum a month	RM16.68
Network Charge - Every kilowatt request maximum a month	Rm14.53
Retail Charge	RM250

Voltage High (ToU)	Rate
Energy Charge - For all kWh current period peak	44.52 sen/kWh
Energy Charge - For all Current kWh period outside peak	40.43 sen/kWh
Capacity Charge - Every kilowatt request maximum a month current period peak	RM21.76
Network Charge - Every kilowatt request maximum a month current period peak	RM23.06
Retail Charge	RM250

Source: Energy Commission

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