



# **Regional Comparison of Retail Electricity Tariffs**

## **Executive Summary**

June, 2012

**International Energy Consultants**

[www.energyconsultants.com.au](http://www.energyconsultants.com.au)

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# Introduction & Methodology

- **Meralco has commissioned International Energy Consultants to prepare an independent report comparing Meralco's regulated retail electricity tariffs with those in selected markets from the Asia-Pacific region and worldwide**
- **This Report aims to provide a detailed snapshot of tariffs in 16 selected markets (including Meralco) at the beginning of 2012**
- **This Report also attempts to investigate the cost drivers and reasonableness of Meralco's tariff**

## Methodology

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- For this Report, IEC has conducted a detailed survey and analysis of retail electricity tariffs and costs in 15 Core markets (13 countries plus 2 US states) plus Meralco, as well as a supplementary, less comprehensive “meta-analysis” of 27 countries in the Euro area and the 50 remaining US states
- The 15 Core markets in the survey include: Malaysia, Thailand, Indonesia, South Korea, Taiwan, Japan (Kansai), Hong Kong, Singapore, Australia (WA), Sri Lanka, NZ, California (PG&E), Hawaii, Canada (Ontario) and South Africa. These markets were selected based on availability and quality of data (including English translations) with a focus on those which would provide a representative range of regional and global cost and tariff structures
- For each of the 15 Core markets (and Meralco), retail tariffs were calculated for Residential customers @ 100, 200, 400, 800 & 1500kWh per month as well as Commercial (40kW) and Industrial customers (2MW) each operating at @ 40% and 80% load factors. This data was calculated using published tariff schedules for each market’s respective utility/supplier and cross-checked with actual customers bills (where available)
- Tariffs for each of the supplementary 27 countries in Europe and 50 US states were sourced from data published by Government energy agencies and were not all verified separately by IEC. Tariff data for these supplementary markets is presented for customer categories which may vary from those presented for the Core markets
- Wherever possible, tariffs were unbundled into constituent components, for ease of comparison with Meralco’s unbundled rates (eg. Generation, Transmission, Distribution, Other, VAT)
- Tariffs for each of the 15 Core markets (and Meralco) were calculated for January 2012 in USc/kWh using the average exchange rate for that month. Tariff data for Europe an markets and the 50 US states are reported for November 2011 (most recent available data)
- Composite data for each market (eg. “Average Residential” or “Average All Customers”) has been calculated using actual or estimated weighted averages of the respective customer classes. In those markets where the weighted averages have been estimated, the reported average tariffs may vary by up to 5-10% from actual

- IEC is a Perth-based consulting firm which specializes in providing power market advisory services to companies operating in and associated with the IPP sector within the Asia-Pacific region
- IEC has been operating for over 10 years and has a major client list which includes: BHP Billiton, Shell, CLP Power, InterGen, Itochu, JPower, OneEnergy, PTT, EGCO, Arcapita, Woodside Energy, BG, Sithe, Blackstone, Origin, Meralco & YTL
- Over the past decade, we have undertaken multiple engagements acting as both Sponsor's and Lender's Market Consultant for both acquisitions and greenfield IPP developments throughout Asia
- IEC specializes in modeling most of the major power markets in the Asia-Pacific region including: Philippines, Singapore, Indonesia, Vietnam, NZ, Taiwan, Japan & Korea. For each of these markets we have a detailed customized dispatch model and database and a deep understanding of the market mechanics and regulatory framework.
- We also provide a range of general IPP development services including: acquisition due diligence, greenfield project development, fuel demand forecasting, carbon analysis, strategic/business planning, in-house training courses and temporary secondment of personnel.
- IEC's Managing Director and lead consultant Dr John Morris is recognized as a leading authority in deregulated power markets in the Asia region. Dr Morris was formerly Country Manager for InterGen in Indonesia and Managing Director of InterGen in Singapore. He also holds a PhD in Geology and has worked extensively throughout Asia and globally in the oil/gas exploration industry

# Executive Summary:

# Key Questions & Answers



The key questions addressed in this Report include the following:

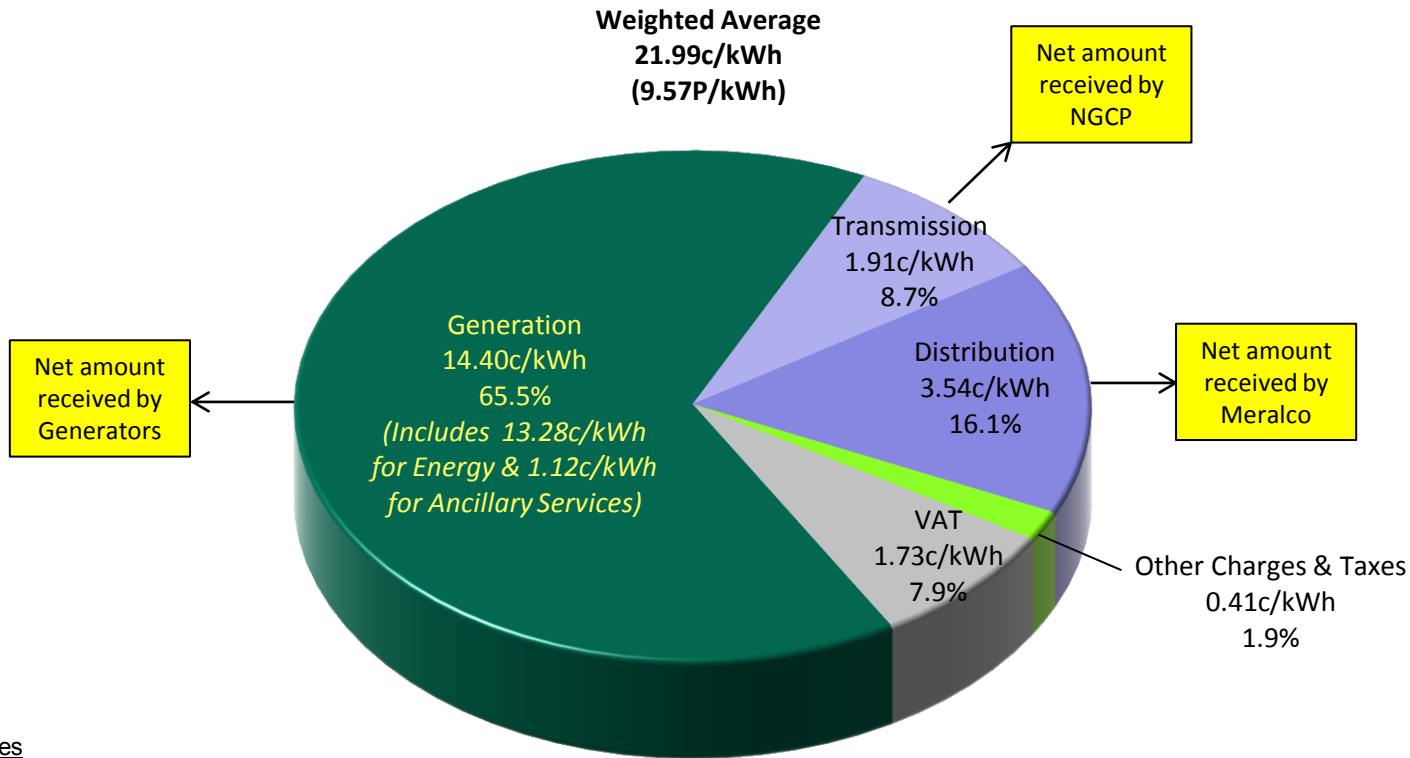
- **Tariff Composition:** *What is the composition of Meralco's retail tariffs?*
- **Tariff Comparison:** *How do Meralco's rates compare with other countries?*
- **Tariff Differentials:** *What are the main factors driving differences between Meralco's tariffs and those in other countries? What are the main factors contributing to the high intrinsic cost of supply?*
- **Tariff Reasonableness:** *Are Meralco's tariffs fair and reasonable?*

- ***What is the composition of Meralco's retail tariffs?***
  - **The main component of Meralco's retail tariff is the Generation Charge (65% of the average retail tariff) which includes:**
    - **IPP charges (44%)**
    - **NPC TSC charges (35%)**
    - **WESM charges (13%)**
    - **Ancillary services (8%)**
  - **IEC estimates that embedded fuel costs comprise approximately 50% of the total generation charge**
  - **The Transmission Charge comprises 9% of the average tariff**
  - **The Distribution Charge comprises 16% of the average tariff. (This is the only part of the tariff that accrues to Meralco. All other charges are collected by Meralco on behalf of third parties).**
  - **VAT and other taxes and statutory charges comprise 10% of the average tariff**

# Meralco Tariff Composition



**At 16% of the total and tightly controlled by the Regulator, the Distribution Charge is not a major component of Meralco's average tariff**

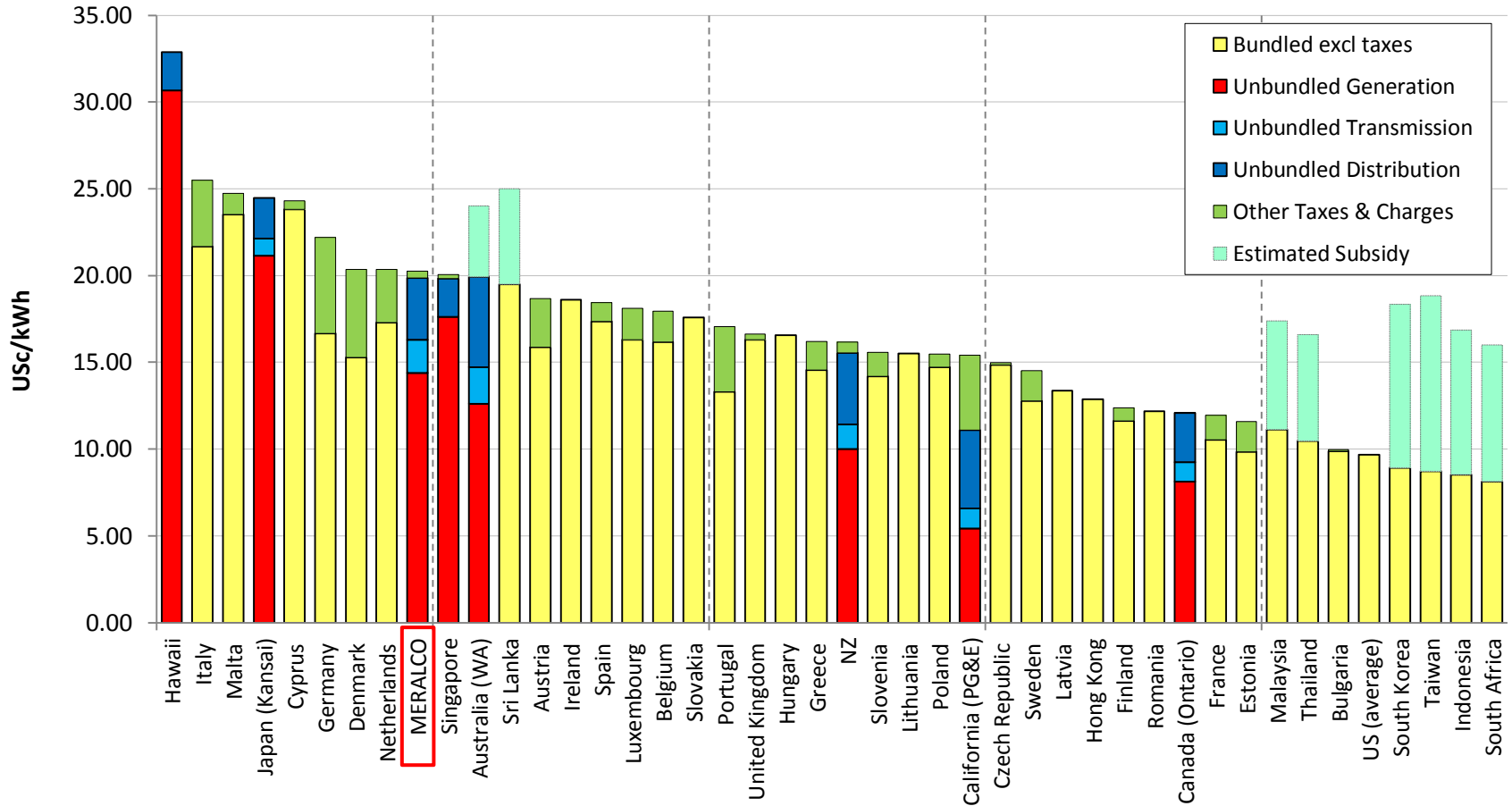


**Notes**

1. US\$1 = 43.54P
2. Data for Jan 2012
3. Ancillary portion of Transmission charge (assumed to be 37% of total) allocated back to Generation charge
4. Transmission & Generation charges grossed up for Distribution Losses

- ***How do Meralco's rates compare with other countries?***
  - Meralco's weighted average retail tariff (20.26c/kWh excluding VAT but including all other taxes and duties) ranks in the top quintile (9<sup>th</sup> highest & 24% above the average) among the 44 markets surveyed and is comparable with Singapore, Australia, Netherlands & Denmark but significantly higher than several other countries within the Asia-Pacific region (which benefit from heavily subsidized electricity rates)
  - Meralco's Residential retail tariff (24.85c/kWh incl. VAT) ranks in the 2<sup>nd</sup> quintile (17<sup>th</sup> highest & 13% above the average)
  - Meralco's Commercial retail tariff (20.43c/kWh excl. VAT) ranks in the top quintile (6<sup>th</sup> highest & 31% above the average)
  - Meralco's Industrial retail tariff (17.28c/kWh excl. VAT) ranks in the top quintile (7<sup>th</sup> highest & 26% above the average)

# Average Retail Electricity Tariffs (All 44 Markets Surveyed)



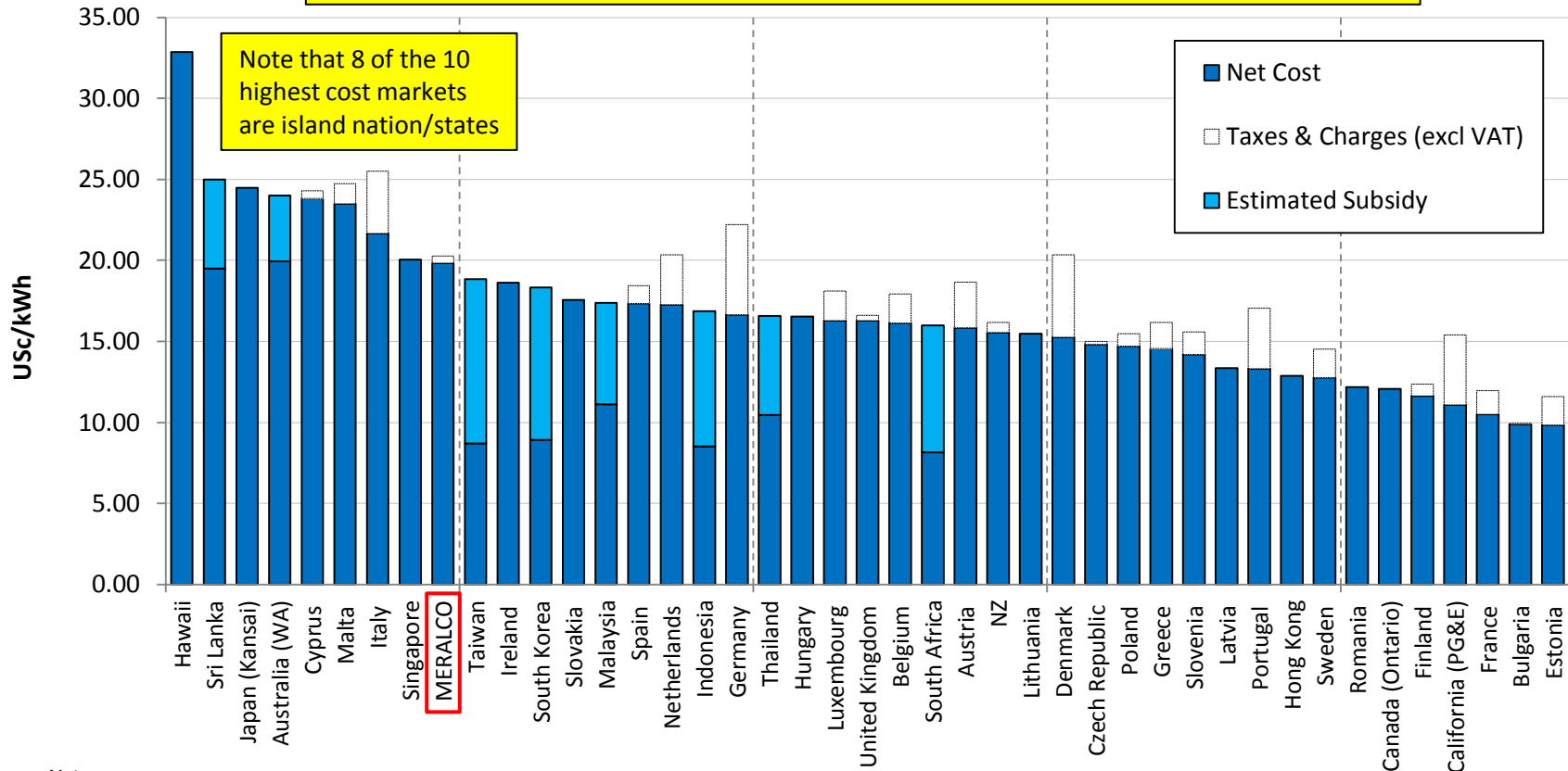
**Notes**

1. Weighted average tariff (all customer categories) excluding VAT
2. Tariffs for US (average) and Euro countries are for Nov 11. All other countries/states (incl Hawaii & California) are for Jan 2012
3. Assumes tariffs in 50 US states have no "Other" taxes
4. Estimated subsidies are based on long-run marginal cost of supply (including fuel subsidies) calculated by IEC

# LRMC Comparison (44 Markets)



**Meralco's cost of supply ranks 9<sup>th</sup> and in the top quintile of the 44 countries surveyed – ie. exactly matching its tariff ranking**



**Notes**

1. Weighted average tariff (all customer categories)
2. Tariffs for 50 US states (excl Hawaii and California) and Euro countries are for Nov 11. All other countries/states are for Jan 2012
3. Assumes tariffs in 50 US states and Europe are cost-reflective (ie. no subsidies)
4. Estimated subsidies are based on long-run intrinsic cost of supply (including fuel subsidies) calculated by IEC

- ***What are the main factors driving differences between Meralco's tariffs and those in other countries?***
  - **Subsidies.** Several neighbouring countries (Thailand, Indonesia, Malaysia, Korea, Taiwan) have average tariffs that are much lower than Meralco's. These lower tariffs result from Government policies to provide subsidies of up to (and in excess of) 50% to consumers. These countries provide subsidies in the form of frozen tariffs, sale of fuel to utilities at below market rates and utility-losses shouldered by the government. IEC believes that providing subsidies via lower tariffs is bad economic practice and ultimately unsustainable. When subsidies are added back to retail tariffs, the true cost of electricity in these countries rises to a level that is much closer to Meralco's.
  - **High intrinsic cost of supply.** Meralco's estimated long-run marginal cost of supply - equal to the replacement or incremental cost of capacity (generation and T&D) plus energy - ranks in the top quintile (9<sup>th</sup> highest & 19% above the average) among the 44 markets surveyed. The cost of producing and delivering electricity in Luzon (and in the Philippines, more generally) is intrinsically high, primarily as a result of the dependence on fossil fuel priced at international market rates, as well as the relatively small (by volume) grid size, geographic challenges of transmission and higher cost of capital (financing costs). IEC notes that 8 of the 10 highest cost markets in the survey are island nation/states and this factor may be a fundamental cost multiplier

## Summary of Answers: Tariff Differentials (Factors contributing to the high intrinsic cost of supply)

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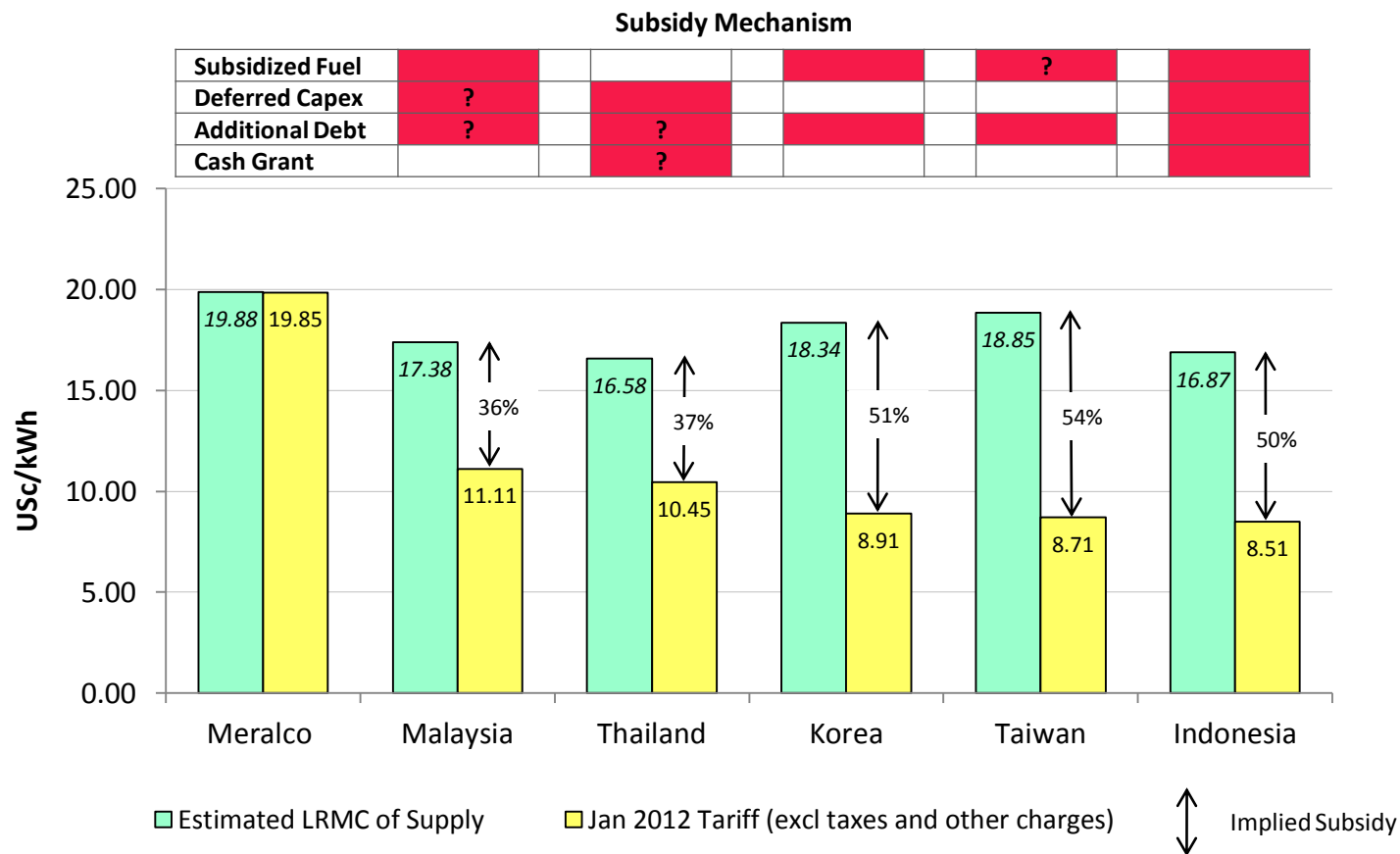


- ***What are the main factors are the main contributors to the high intrinsic cost of supply?***
  - **Import-parity fuel.** Fuel is the largest component of the tariff (around one-third of the total). Approx. 80% of generation on Luzon is fuelled with imported coal and oil (at full international market prices) and domestic gas (pegged to international prices). Several (but not all) other countries with lower tariffs provide fuel to their utilities at below-market rates. Although the remaining 20% of energy is provided by renewables, the all-in cost of these sources is not low. IEC notes that the dependence on (and price of) imported fuel is largely out of the control of the power supply industry and, furthermore, that this reliance is unlikely to change in the medium-term. Depending on price and volume, discovering a new source of cheap domestic fossil fuel for the power industry would be the single largest step towards achieving lower industry costs
  - **Grid size and plant mix.** The Luzon grid size, relative its regional counterparts, is smaller and has a high dependence on hydro which requires a higher reserve margin requirement. IEC notes that the reserve margin requirement will likely be reduced over time as load grows
  - **Higher financing costs.** The weighted average cost-of-capital in the Philippines (power sector) is higher than most (but not all) countries in the region. Debt cost is relatively high and loan tenors are shorter
  - **Geographical challenges.** Transmission costs are inherently high as power has to be transmitted across several islands
  - **Cross-subsidy in transmission rates.** Wholesale transmission rates in the Luzon/Visayas grid are postage-stamp. The higher cost of transmission to consumers in the Visayas is subsidized by consumers in the Luzon grid



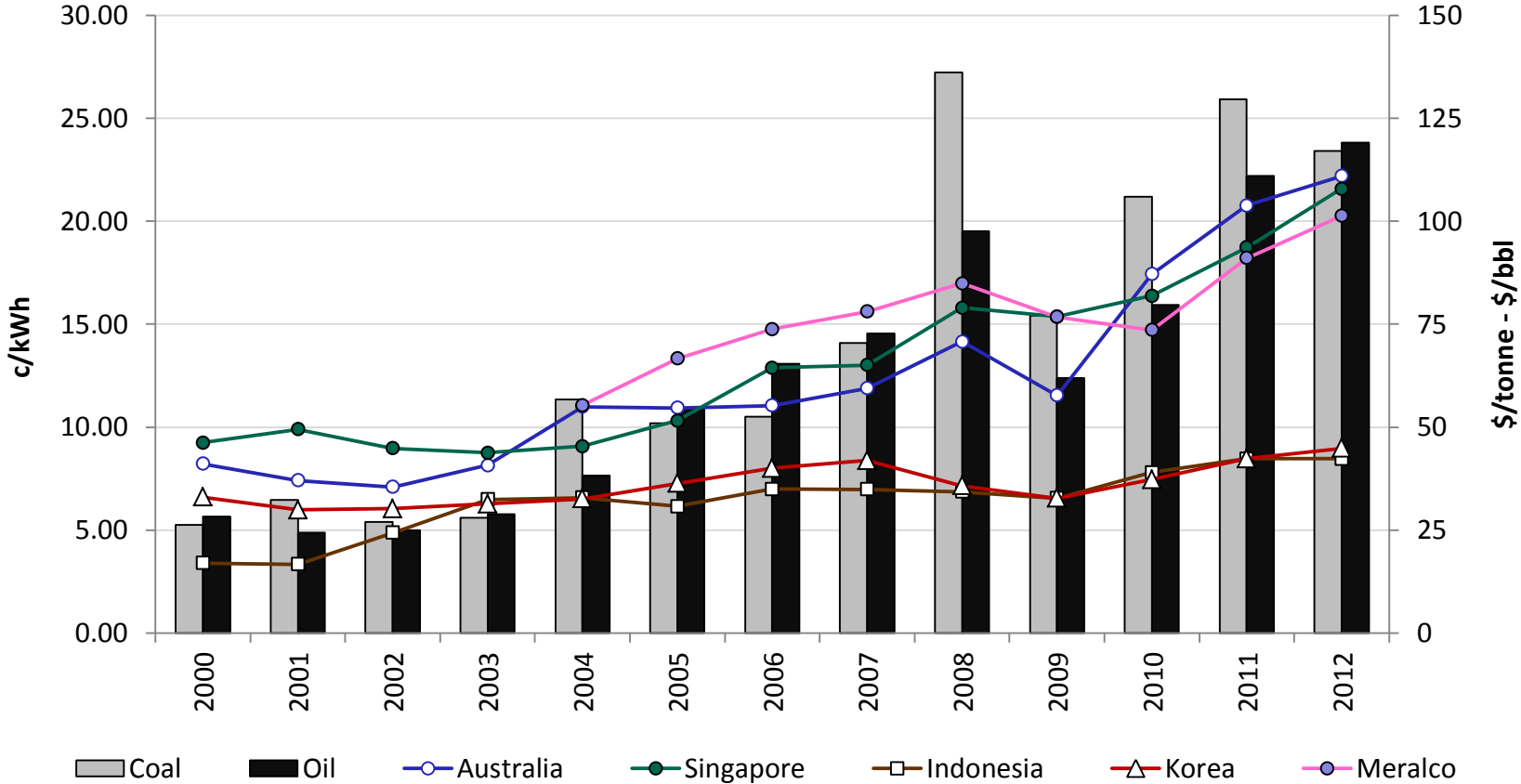
# Regional Comparison of Subsidies

A comparison of true cost of supply versus average tariffs shows that many countries in the region heavily subsidize their electricity rates. These subsidies have been mainly caused by the inability to pass through fuel price increases during that period



# Historical Fuel Costs vs. Tariffs

**Over the past decade, some markets have passed rising fuel costs on to customers (eg. Singapore, Australia, Philippines) but others have not (eg. Indonesia, Korea)**



NB. Meralco, Indonesia & Korea are averages of all tariff classes; Singapore, Australia are residential tariffs only

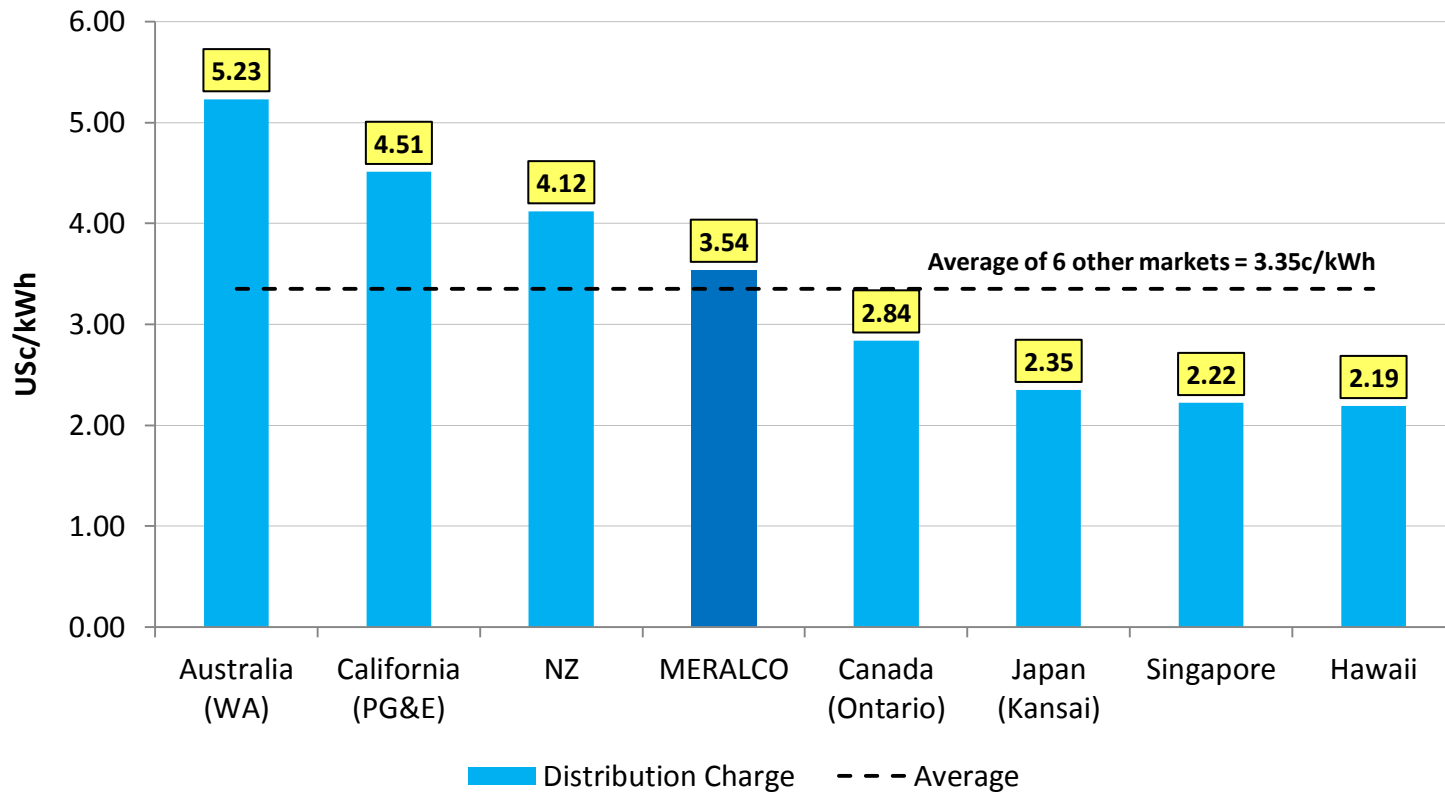
Source: IEC

- ***Are Meralco's tariffs fair and reasonable?***
  - For a variety of reasons, the intrinsic cost of supplying electricity in the Philippines is high
  - Furthermore, because the average tariff is fully cost-reflective (unlike many neighbouring countries who provide heavily subsidized power), Meralco's customers pay the actual cost of supply
  - The Generation Charge (65% of the total tariff) is very close to IEC's estimate of the LRMC of wholesale energy in Luzon. Customers are effectively paying close to the incremental replacement cost of the energy they are using
  - Although the Transmission Charge (9% of the total) is 40% higher than the average of the markets surveyed, IEC believes that the rate may be justified, given the geography of the network area and the cross-subsidy for non-Meralco customers
  - The Distribution Charge (16% of the total) is highly transparent and regulated and is close to the average rate for the markets surveyed. On this basis, IEC judges that the charge is probably fair and justified
  - Taxes and Other charges (10% of the total) are comparable with many other markets – especially for non-residential customers that can recover VAT
  - Considering all of these factors, IEC believes that - on average - Meralco's customers are currently paying a fair and reasonable price for retail electricity

# Comparison of Distribution Charges



In comparison with the six other markets for which data was available in the survey, Meralco's Distribution Charge is close to the average



**Meralco is not alone in Asia in raising tariffs. Rates in most countries are rising in line with increasing fuel costs - including several that have frozen rates for many years and need massive “catch-up” increases**

January 17, 2012 11:02 am

## Tepco raises electricity price by up to 18%

### Indonesia Plans 10% Increase in Electricity Price

By Eko Listyorini - Mar 8, 2012 10:05 AM GMT+0800

INVESTMENT, BURSA & IPO, MALAYSIA NEWS

## Malaysian electricity rate to rise average 7.12%

### Vietnam Electricity Seeks 13% Power Price Rise

By Bloomberg News - Oct 19, 2011 10:08 AM GMT+0800

## Electricity bills to go up again - by 21 per cent in the city

Brian Robins  
June 13, 2012

ASIA NEWS | November 30, 2011, 1:22 p.m. ET

## China to Increase Power Prices

### South Korea to Raise Power Prices for Second Time This Year

By Sangim Han - Dec 2, 2011 1:00 PM GMT+0800

*“A rare blackout which sparked fury in South Korea could recur anytime because successive governments have kept electricity prices artificially low to appease voters, encouraging overuse, experts say” – Tribune, South Korea*

*“Indonesia plans to restrict the use of subsidized fuel in a bid to shield the state from surging costs after the government failed to pass a price hike through parliament in March.” – AFP*

*“Petronas CEO calls for end to gas subsidies” – The Malaysian Insider*

*“Taiwan will end a long-standing government subsidy to raise electricity rates in a bid to conserve energy and reduce carbon emissions” – Yahoo Finance*

# Conclusions

- Meralco's average retail electricity tariff ranks 9<sup>th</sup> among the 44 markets surveyed & 2<sup>nd</sup> highest in the Asia region (after Japan which is 17% higher)
- Although Meralco's tariffs are – in some cases - more than double those of its regional counterparts, the main reason (>75%) for the difference is government subsidies that are provided to customers and/or utilities in these markets so that tariffs remain well below the cost of supply.
- IEC believes that such subsidies are poor economic policy and unsustainable. Customers accustomed to cheap power in these subsidized markets are likely to suffer extreme price shocks when subsidies are removed which IEC believes is likely in the short- to medium-term
- In contrast, Meralco's tariffs are fully cost-reflective which is sound economic policy in a high growth market such as Luzon which has limited available capital
- The remaining 25% of the tariff differential is attributable to the higher underlying cost of supply in the Philippines. (When subsidies are added back to the tariffs in lower-priced countries, the total cost of supply in these markets is comparable with or even higher than in Luzon)
- The main causes of the higher underlying cost of supply in Luzon include imported fuel costs, high cost-of-capital, smaller grid size/volume, transmission cross-subsidies and challenging geography

- **Efforts to reduce the total cost of supply should principally focus on lowering barriers for new generation. The greatest barrier to the entry of new IPPs in Luzon is the lack of access to long-term, large-scale PPAs with creditworthy offtakers. Measures to facilitate the entry of new generation include certainty on the schedule of Retail Open Access and the aggregation of smaller distribution companies**
- **IEC notes that very little of the tariff is within the control of Meralco and monthly rates variations are mainly a function of global fuel and currency market fluctuations in the generation market**
- **Based on a comparison of the individual components of Meralco's tariff with the intrinsic cost of supply in Luzon and rates/costs in other markets, IEC judges that Meralco's rates are currently fair and reasonable**