

Review of Retail Electricity Tariffs

Azerbaijan, China, India, Indonesia,
Myanmar, Philippines, Thailand, Vietnam

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Cecilia Lee

Supervisor: Mr. Yongping Zhai

SDAS/SDCC

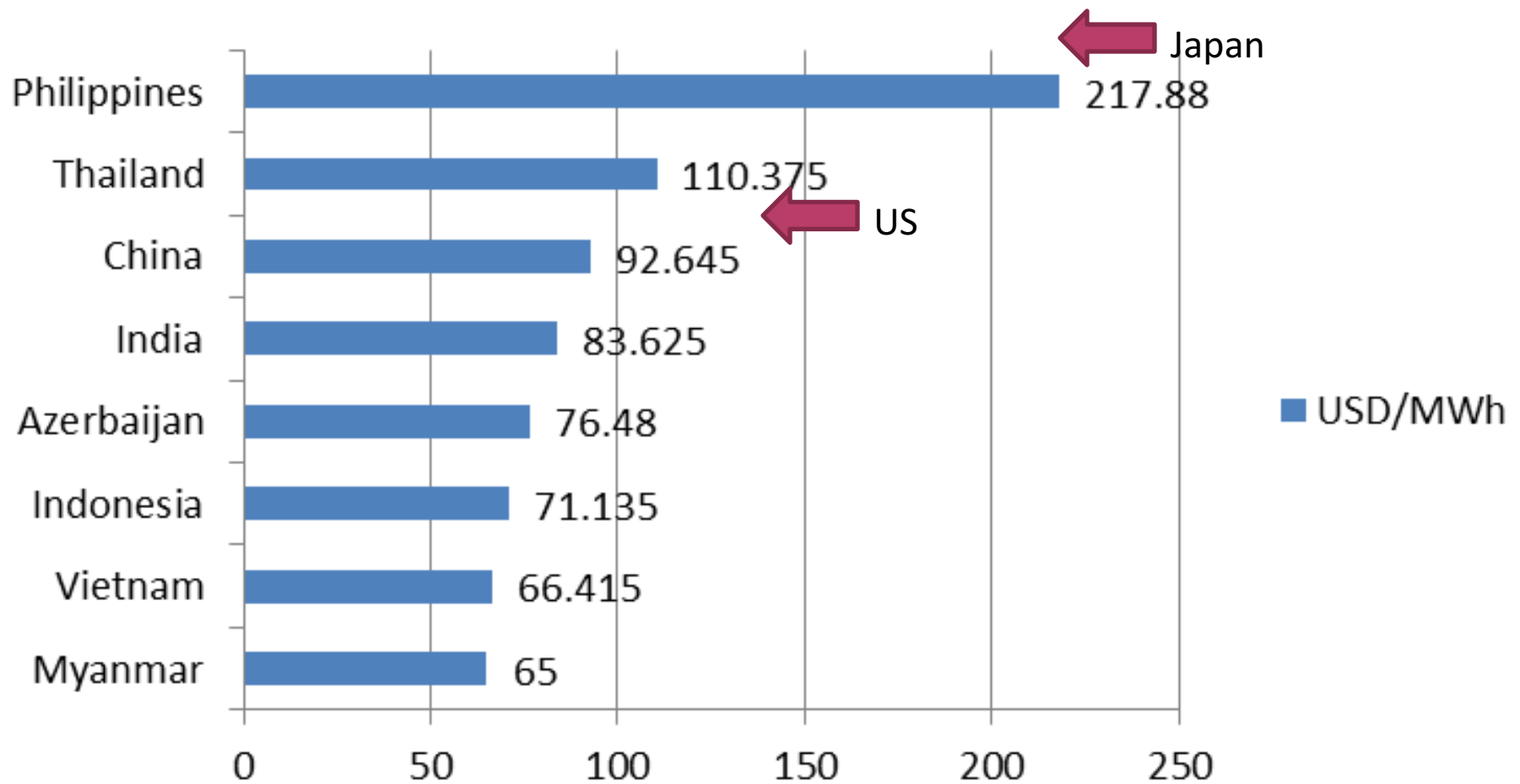
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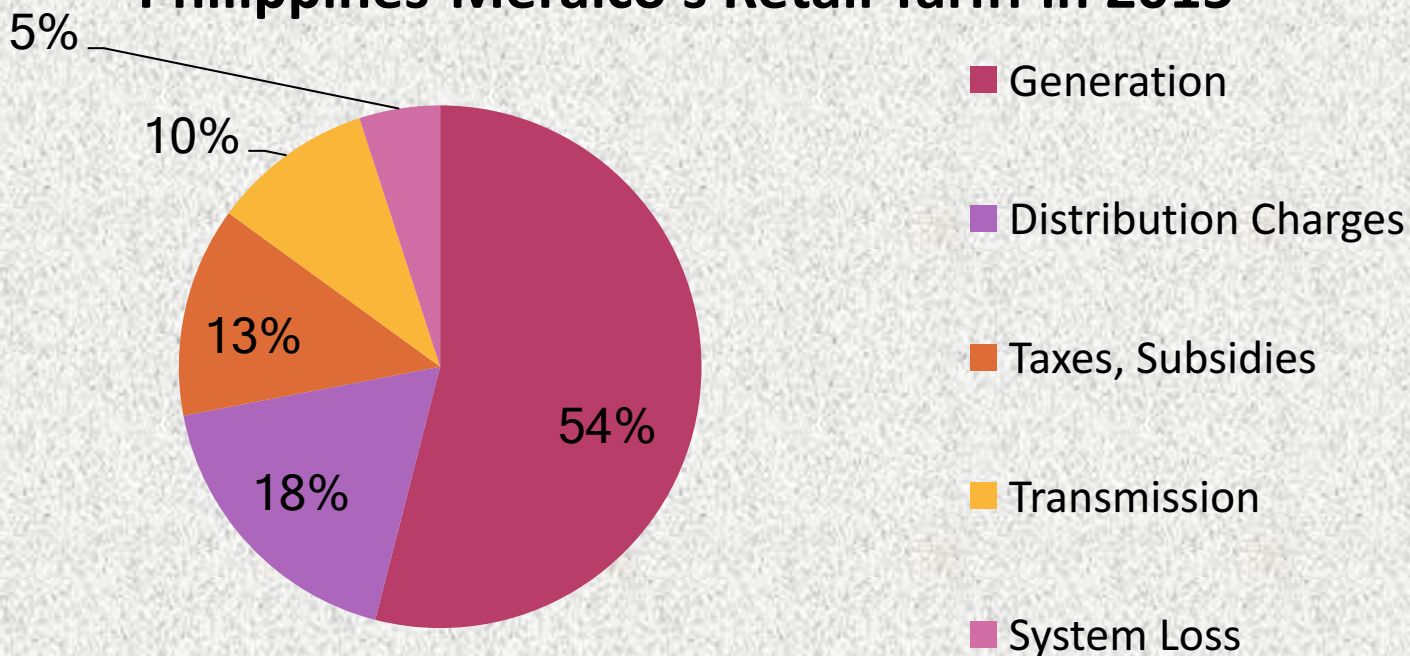
Concerns over retail electricity pricing in the Developing Member Countries (DMCs)

1. Financial Losses
2. Energy Inefficiency
3. Fossil fuel subsidy for electricity generation

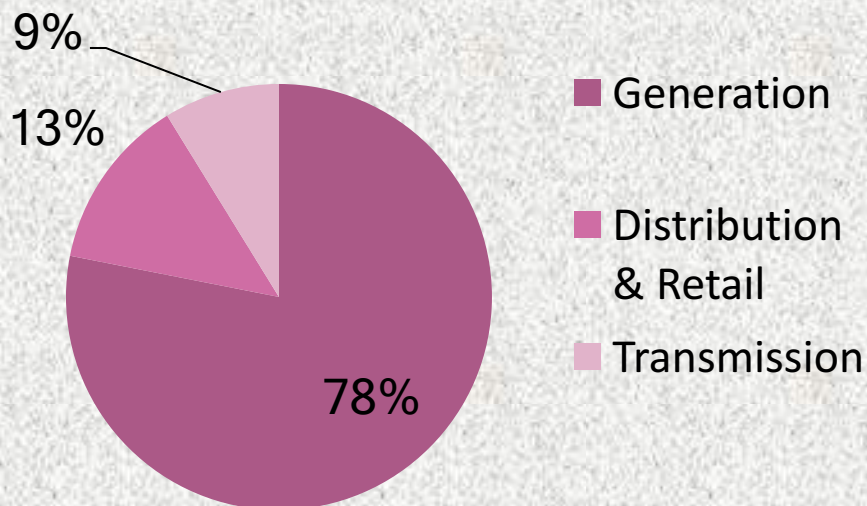
Average retail electricity prices in 2013



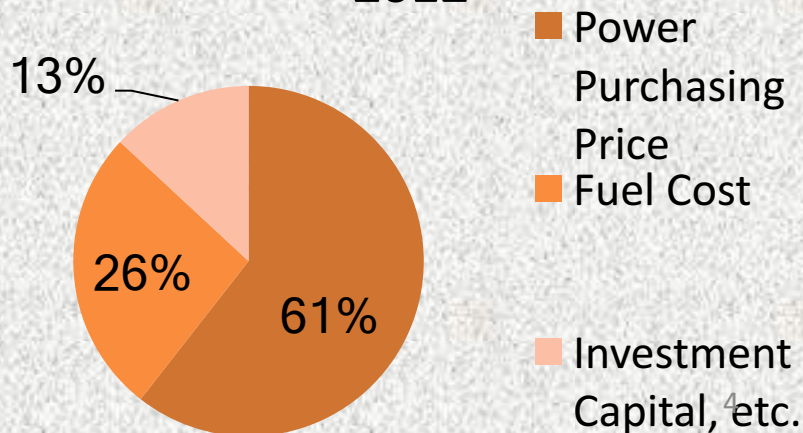
Philippines-Meralco's Retail Tariff in 2015



Thailand-EGAT's Retail Tariff in 2012



Breakdown of Generation for EGAT's Retail Tariff in 2012





Cross-Subsidy between Industrial and Residential Users

- Industrial=Residential
– Azerbaijan
- Industrial > Residential
– China, India, Myanmar, Indonesia
- Residential > Industrial
– Thailand, Philippines, Vietnam



Azerbaijan

- Industry=Residential: US\$0.059/kWh (2015)
 - generation & transmission: US\$ 0.046/kWh (78%)
 - distribution: US\$0.013/kWh (22%)
- Limited unbundling for a separate distribution company (but in 2006, returned to state hands) -> now, largely vertically integrated monopoly
- **Energy utilities do not fully recover the cost**
- **Untargeted universal subsidy** from the very low input price of gas (83% of installed capacity)
 - unable to efficiently help who needs the support most

Azerbaijan

- ADB Project, Approved in August 2016
 - Preparing a Power Sector Financial Recovery Plan
 - Technical Assistance Special Fund (\$1.2m)

<Project Outputs>

1. Real cost of electricity supply calculation
2. New tariff structure
3. Financial recovery road map
4. Public information campaign



China

- Industry (US\$0.10/kWh) > Residential (US\$0.077/kWh) in 2013
- **Cross-subsidization for residential** (industrial sector pays at higher electricity rate)
- Significant diversity of rates and rate structures across provinces
- No lifeline tariff
 - But the lowest income household group (~US\$3/day per capita) receives 10-15kWh free per month
=40 million households, equal to 10% of the total national population (NDRC, 2012)

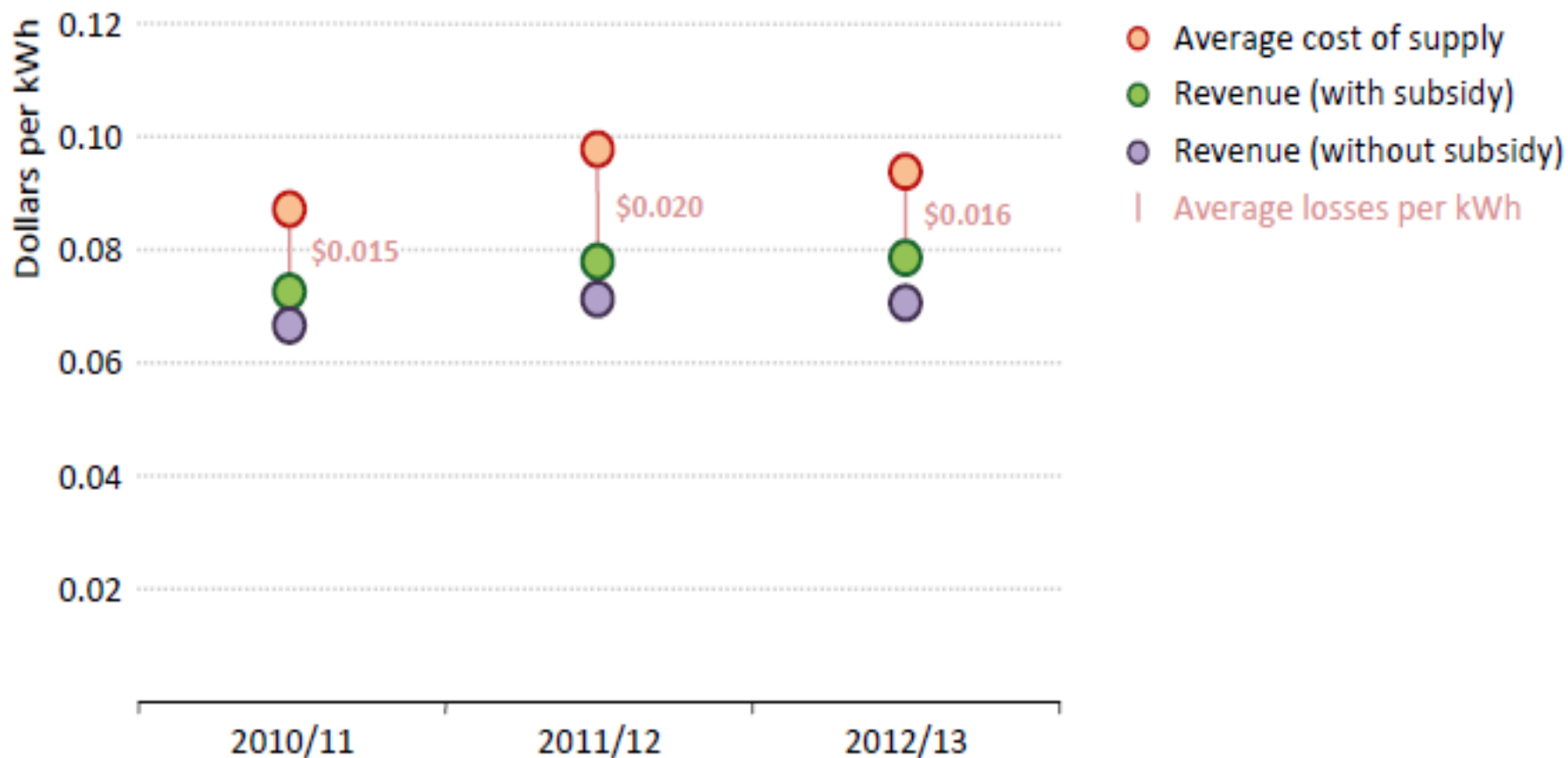
China

- Strict regulation by the National Development and Reform Commission (NDRC), part of the Central Gov't
- **Retail prices set to control inflation and as development policy**
- October 2010: a three-tier electricity pricing system for the residential sector introduced, transitioning from the flat pricing system
 - So far, it is not clear whether the increased price from the reform is able to recover the cost, and if it is not, to what extent the surplus or deficit exists (IISD, 2015)



India

Average cost of electricity and average revenue in India, 2010-2013



Sources: Power Finance Corporation; IEA analysis.

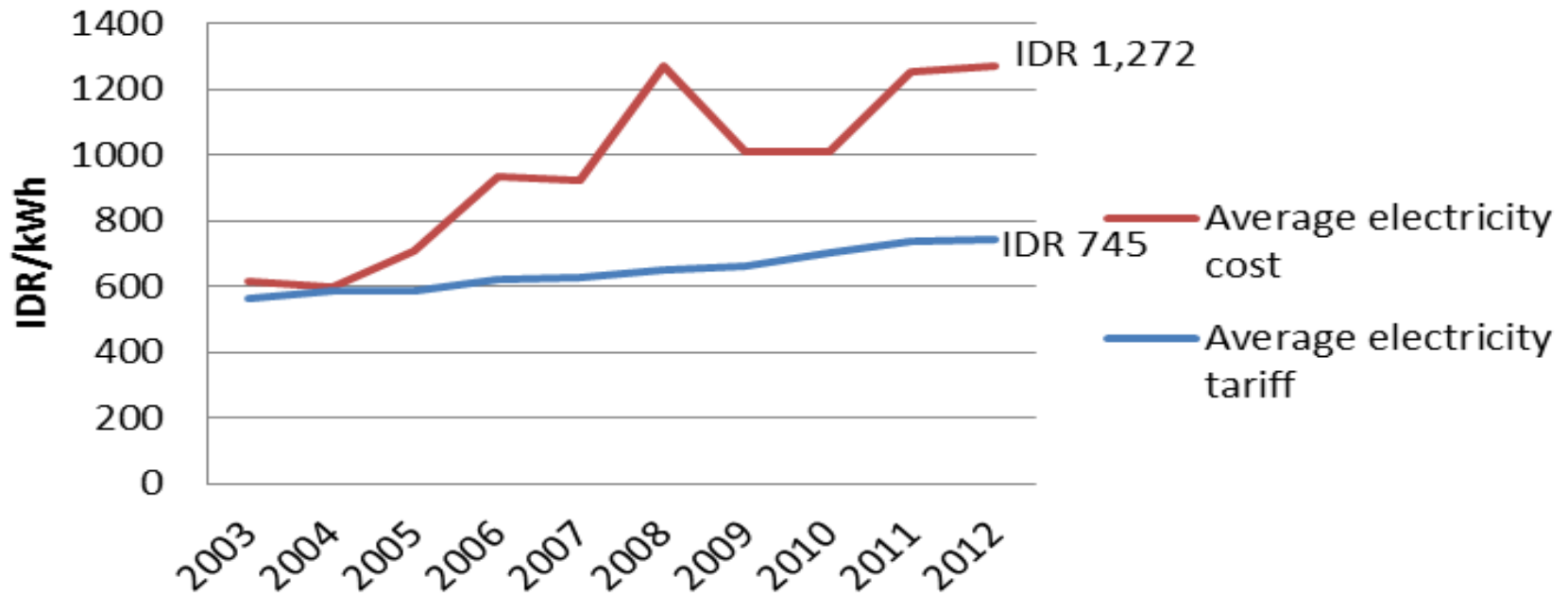
India

- **Industrial** (US\$0.091/kWh) > **Residential** (US\$0.07/kWh) in 2015
- **Heavy subsidization to agriculture and residential users**
-main obstacle to rapid deployment of distributed rooftop solar
- **Tariff and subsidy reform needed**
-poor financial health of the distribution sector (operating losses: over US\$ 10bn annually) impacts the entire power sector sustainability in India
e.g. PPAs have limited bankability
- **High levels of nontechnical losses (theft) is a serious problem:** a US\$4bn smart-meter capital investment program approved in Nov 2014 (in New Delhi, nontechnical losses 45%→7% in the 1st year of implementing the Smart Meter)



Indonesia

Comparison of electricity cost and tariff in Indonesia from 2003 to 2012



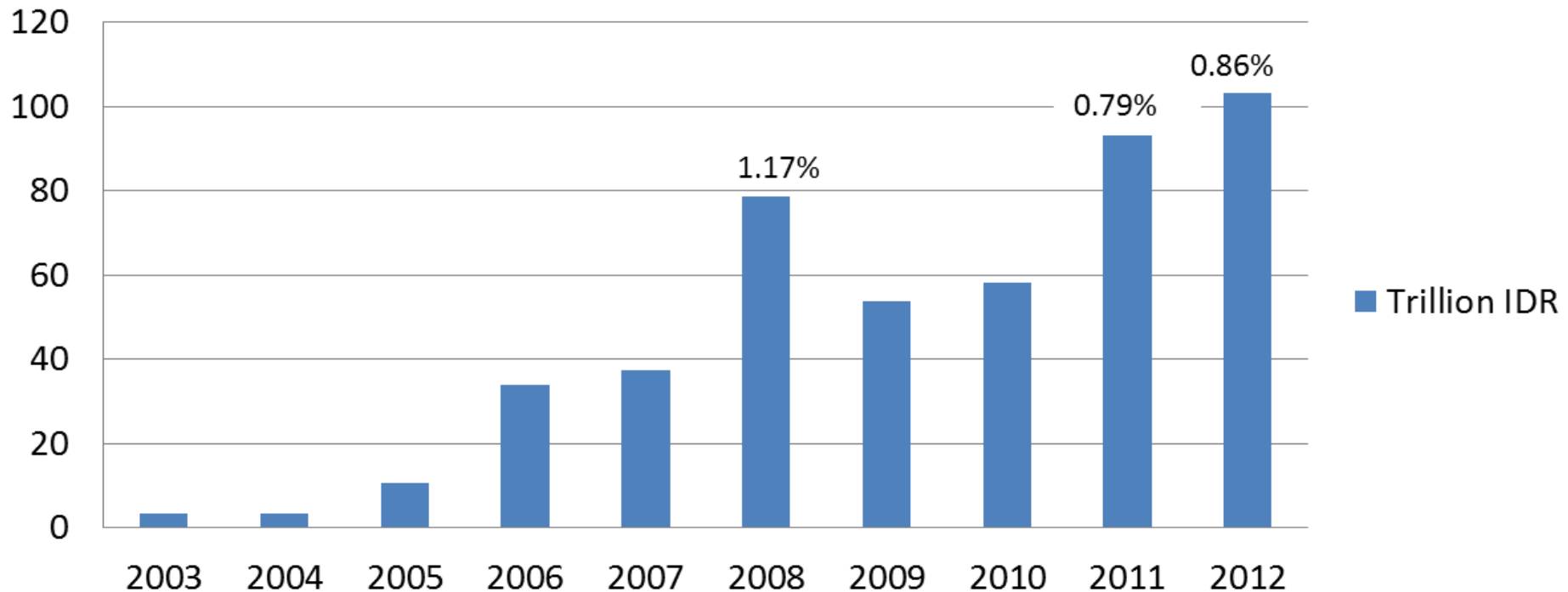
- Indonesia has been bringing the electricity tariff up with periodical adjustments according to a predetermined timetable since 2013

Indonesia

- Industrial (US\$0.073/kWh) > Residential (US\$0.057/kWh) in 2015
- Unbundled Power Sector
- **Major electricity subsidy reform postponed**
 - In July 2016, PT PLN (Indonesia's state owned electricity company, monopoly on distribution) estimates US\$ 1.3 bn costs to keep providing electricity to end users without the reform until the end of 2016
 - The reform is expected to exclude non-poor households in the 900VA connection class, which would reduce subsidy recipients in that class from 22 million households to 4 million households

Indonesia

Electricity Subsidies from 2003 to 2012



- Low rural electrification rate: 66% (Urban: 94%)
- Since 2015, PT PLN publishes adjusted tariffs every month based on an evaluation on the IDR—US\$ exchange rate, the Indonesian Crude Price and the inflation rate (Source: GSI/ IISD)



Myanmar

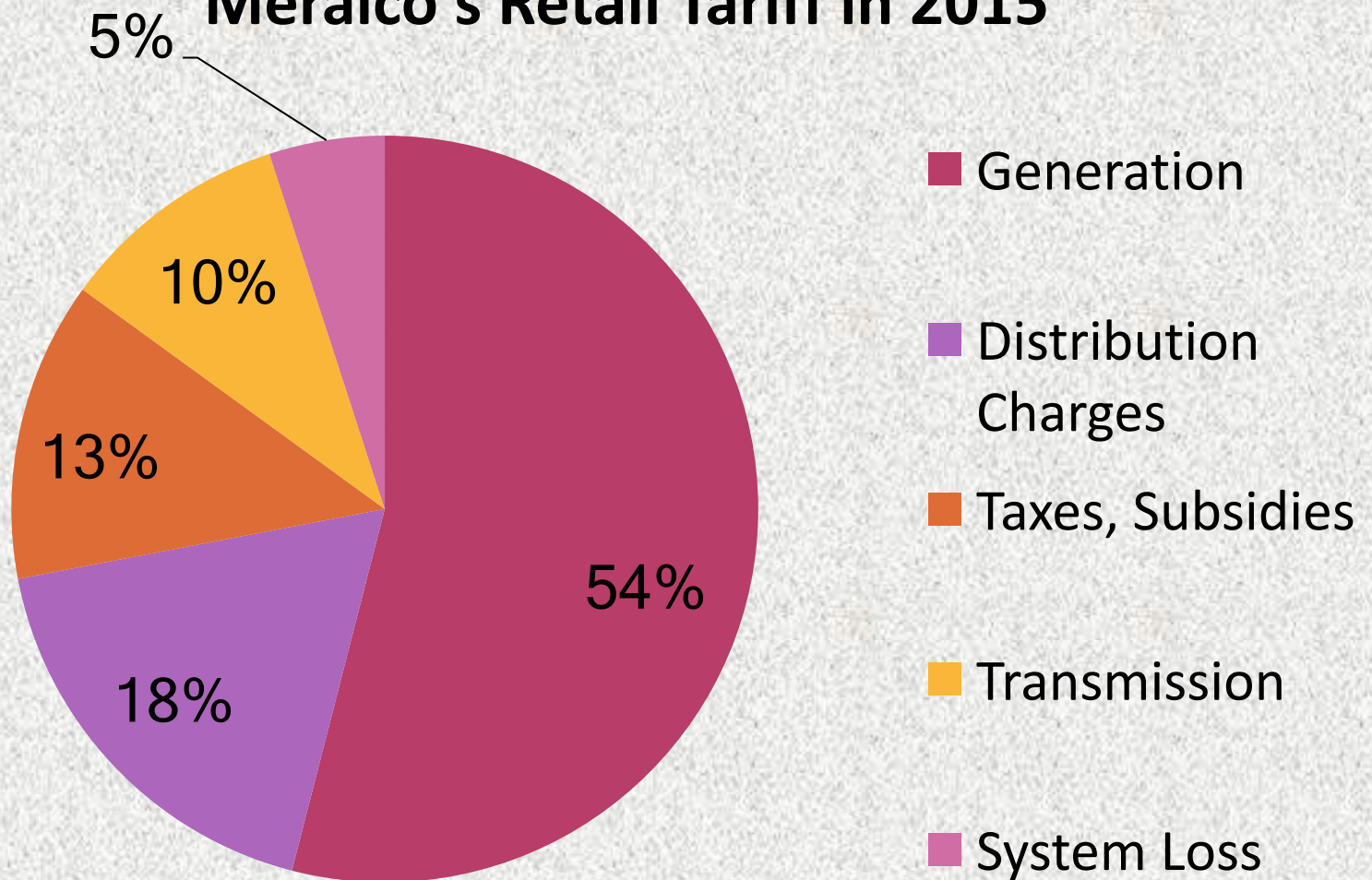
- State-owned single-buyer model/ Vertically integrated
- Depends on volatile hydropower and old gas-fired power plants
- Heavily subsidized electricity
 - Industrial (US\$0.086/kWh) > Residential (US\$0.034/kWh) in 2015
 - Gov't covers 72% of the tariff by subsidy
 - The lowest tariff among the studied countries: US\$0.034/kWh (Philippines (highest): US\$0.2/kWh)
 - **The low electricity prices threaten fiscal capacity and do not attract IPPs**

Myanmar

- **Lowest electrification rate among ASEAN countries**
 - Urban (60%) & Rural (18%)
- **50% electrification rate target by 2020 and 100% by 2030**
 - Gradual tariff subsidy reform must be conducted
 - Private investments needed in addition to the loans from the MDBs and aid from bilateral ODAs
 - ADB: Power Transmission Improvement Project (US\$80m)
 - World Bank: Electric Power Project (US\$140m)

Philippines

Meralco's Retail Tariff in 2015





Philippines Meralco

August 2016 Rate of Schedule

	Generation Charge*	Distribution Charge	Lifeline Rate Subsidy**	Lifeline Discount	Senior Citizen
Residential	per kWh	per kWh	per kWh	%	per kWh
0 to 20 kWh	3.8560	1.0012		100	
21 - 50	3.8560	1.0012		50	
51 - 70	3.8560	1.0012		35	
71 - 100	3.8560	1.0012		20	
101 - 200	3.8560	1.0012	0.076		0.0001
201 - 300	3.8560	1.3183	0.076		0.0001
301 - 400	3.8560	1.6175	0.076		0.0001
Over 400	3.8560	2.1387	0.076		0.0001

Meralco publishes monthly rates
<July 2016>

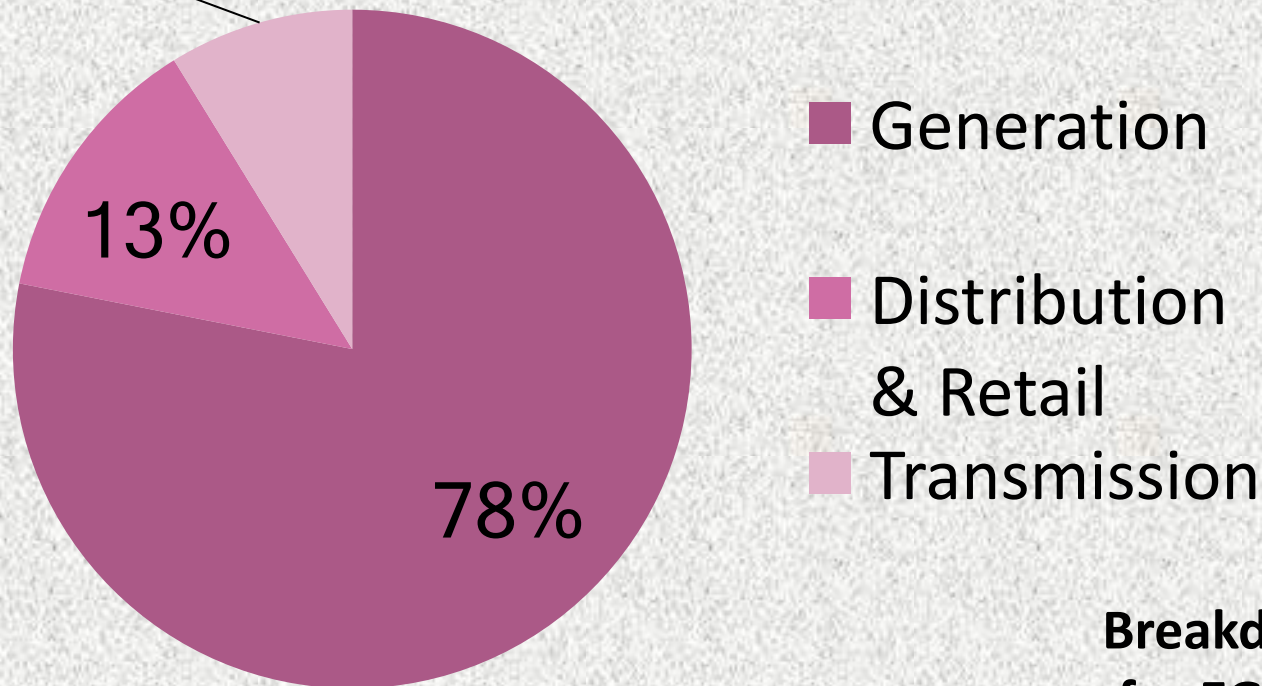
Generation Charge*: 4.0604

Lifeline Rate Subsidy**: 0.062

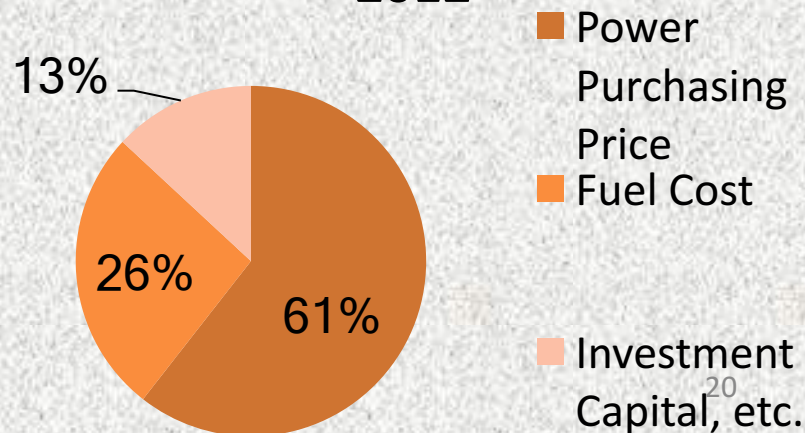
Philippines

- First introduced in 1987, **IPPs provide 44% of the total installed electricity capacity**
 - Controversial IPP contracts led to extremely high electricity prices (IEA, 2015) to limit the impact on public finances (World Bank, 2016) *“legacy cost”*
- Independent Electricity Regulatory Body
- Rural electrification remains low: 67% (Urban: 94%)
- Among the studied countries, **only fully "unbundled" power sector** using privatized power generators and independent grid operators
 - Unbundled charges: mirrors the industry supply chain, all adjustments in the rates are governed by Regulatory Mechanisms

Thailand-EGAT's Retail Tariff in 2012



Breakdown of Generation for EGAT's Retail Tariff in 2012





Thailand

- Residential (US\$0.12/kWh) > Industrial (US\$0.084/kWh) in 2015
- Lifeline Tariff exist
- Independent electricity regulatory body
- Electricity distribution largely monopolized by 100% government-owned Electricity Generating Authority of Thailand (EGAT)
- Universal electricity access
 - Urban (100%) & Rural (98%)

Thailand

- As of 2015, the installed capacity comprised of...
 - Private IPPs: 60%
 - EGAT: 40%
- Generation increasingly relying on imported natural gas well ahead of coal
 - Vulnerable to fluctuations in the international market -> might cause unstable electricity supply and power security



Vietnam

- Strongest increase in electricity demand of all ASEAN countries in the past decade (IEA, 2015)
- Only Vietnam increased its retail tariffs in 2014-2015 among the studied countries
 - Industrial (US\$ 0.06 -> US\$ 0.0648/kWh)
 - Residential (US\$ 0.07-> US\$ 0.081/kWh)
- Reductions in cross-subsidies
 - Since 2009, residential electricity tariffs increased to eliminate the cross-subsidy from commercial and industrial towards residential users.
- No lifeline Tariff

Vietnam

- Vietnam has low technical losses (e.g. theft), high levels of billing and cash collection, and low levels of operating costs
- Present retail tariffs are below the cost of supply
 - Must reach the cost recovery level to achieve financial sustainability of EVN (Vietnam Electricity (the largest power company in Vietnam))
 - Recommended to increase the tariffs higher than the rate of inflation
 - Otherwise, EVN's debt will become “unsustainable”

Analysis of Review

- Cost reflective tariff is crucial for long-term financial sustainability of power sector
 - Affordability is very important, too
 - Electrification rate and reliable power provision are closely related to the cost recovery of energy companies
- Weakening currency of several DMCs is also a major contributor of their energy companies' debts

Analysis of Review

- Subsidy design for renewable energy
 - For energy security and diversity
 - For greenhouse gas emissions reduction
- Cross-subsidy must be re-evaluated
 - Check if it deters new private investments
 - Ensure most vulnerable & poorest population get support (social protection)
- Transparent and independent regulatory body
- Robust private sector participation for investments



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Thank You

Cecilia Lee

Master of Science '17, School of Natural Resources and Environment

Master of Applied Economics '17

University of Michigan

lcecilia@umich.edu