Numerous factors contribute to subsidy gap in electricity services

**Average Costs**
- Reasons for high costs
  - Excessive generation costs
  - T&D losses
  - Over-staffing

**Average Revenue**
- Reasons for low revenue
  - Under-pricing of tariffs relative to costs
  - Under-collection of revenues from public, large industrial, commercial and residential customers

**SUBSIDY GAP**

**COST RECOVERY**

**Time**

`WORLD BANK GROUP`
Under-pricing of electricity remains prevalent across the developing world

Quasi-fiscal deficits remain substantial in some economies driven by under-recovery of costs

- Quasi-fiscal deficit is the difference between the net revenue of an efficient utility and the net cash it collects

- For 38 Sub Saharan African countries, QFD averaged 0.9% of GDP with underpricing the largest component (Kojima and Trimble, 2016)

- Over half of 14 countries in MNA had QFD >4% of GDP; with underpricing accounting for three quarters of QFD in most cases (Camos, 2018)

Source: Rethinking Power Sector Reform, 2019
There are degrees of cost recovery for electricity pricing

**LEVEL 1**
- Recovers actual OPEX borne by utility

**LEVEL 2**
- Recovers actual OPEX and limited historic financing costs (debt service) borne by utility

**LEVEL 3**
- Recovers full OPEX and full CAPEX for historic and planned future investments

*Level 1 and 2 do not consider who pays, government may cover some parts of OPEX, and/or provide capital grants or concessional finance*

*Level 3 requires all cost elements to be covered by the utility as would be required under private sector ownership*
While many utilities cover operating costs, few cover full capital costs of service.

Different measures of cost recovery (average tariff as % of costs)

Source: Rethinking Power Sector Reform, 2019
Regulatory tariff determinations do not always translate into tariff adjustments

- Increasing tariffs can be contentious for regulators, and requires authorizing environment that varies
  - across countries
  - across time in any given country
- Some of them operate more as “advisory” than “independent” regulators
- A possible compromise adopted both by Egypt and Senegal is to have
  - the regulator determine the revenue requirement of the utility
  - the government (MoF/MoE) decide the tariff level contingent on providing required compensating subsidy to meet revenue required

Source: Rethinking Power Sector Reform, 2019
Macro-shocks can rapidly erode value of regulatory tariff hikes

TANESCO, Tanzania

- Even when regulators succeed in adjusting nominal tariffs, their real value may be rapidly eroded through exchange rate devaluation
  - In Tanzania, LCU tariffs rose 500% from 1994-2015, while in USD terms tariffs rose by only 50%
  - In Pakistan, LCU tariffs rose 517% from 1994-2015, while in USD terms tariffs rose by only 90%

Source: Rethinking Power Sector Reform, 2019
Sector shocks play a major role in moving countries in and out of cost recovery

**Senegal: Cost recovery improves after oil price drop in 2014**

**Tanzania: Cost recovery improves after end of drought in 2014**

Source: Rethinking Power Sector Reform, 2019
Affordability remains a serious constraint to tariff-setting in LICs with tariffs >$0.15/kWh.

Note: Central African Republic, Liberia, and Somalia are outliers in the red zone and fall out of the range of the axis.

Source: Rethinking Power Sector Reform, 2019
Prevalent cross-subsidies benefit residential customers and incentivize grid defection

Comparison of Average Effective Electricity Tariff Across Customer Categories (US$/kWh)

Average Nominal Electricity Tariffs by Income Group and Customer Class

*LCOE estimates for Solar PV from Renewable Power Generation Costs 2017, IRENA

Source: Rethinking Power Sector Reform, 2019
Conclusions

• Under-pricing is not the only reason for a subsidy gap in the electricity sector, but it is often the major one.

• While most jurisdictions set prices to recover operating costs, few are able to sustain prices that cover full capital costs.

• Regulators face political economy challenges in getting through the tariff adjustments demanded by cost recovery.

• Even when tariffs are adjusted, cost recovery can be rapidly eroded.
  • By macro-economic shocks like exchange rate devaluations.
  • By sector shocks like oil price hikes (thermal system) or droughts (hydro systems).

• Furthermore, genuine affordability concerns exist when cost recovery tariffs fall above $0.15/kWh in low income countries.

• In addition to benefiting from subsidies, residential customers also benefit from cross-subsidies at the expense of commerce and industry.

• Tariff levels for grid electricity across customer classes are reaching a level where rooftop solar will become increasingly competitive.