Introduction to ESCOs and Their Role in the Caribbean's Energy Transition

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CAB webinar on "Opportunities For Financing of Energy Efficiency Projects Across The Caribbean"
9 July 2025

Energy efficiency – "*The first fuel*"

- **Readily available**, **cost-effective resource** that can lower energy consumption and emissions, <u>without major investments or technological breakthroughs</u>
- Supports **energy security**, **affordability**, and the clean energy transition
- Reducing energy demand (energy conservation) helps **controlling the level of investments needed for the transition towards renewable energies**

EE is not only about lowering energy bills! It's also about a more SUSTAINABLE approach to limited resource use and transitioning to a more RESILIENT society

CARIBBEAN energy

Why are buildings important?

- The energy used for **constructing, heating, cooling and lighting homes and businesses, as well as for appliances and equipment's use**, accounts for 30% of global final energy consumption

- The global buildings sector represents **more than 55% of electricity consumption** and **26% of global energy-related emissions**

A big part of rising energy demand and emissions, due **to proliferation of AC and electrical appliances**, and increasing consumption from digital services

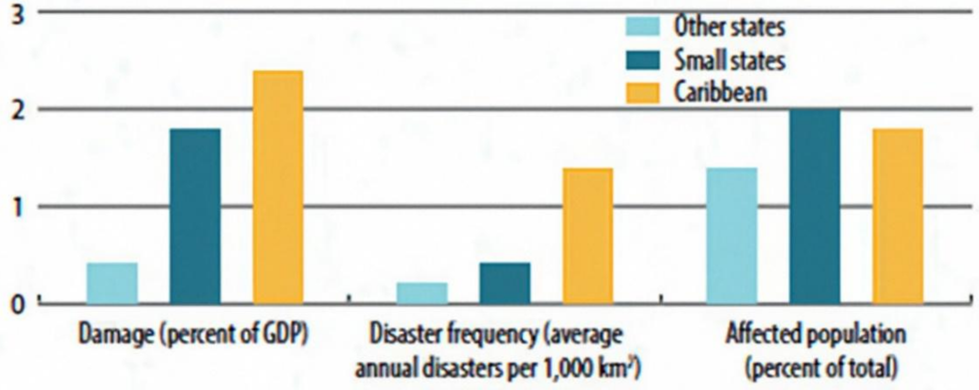
The unique context of SIDS

- Negligible impact on global GHG emissions but **home to some of the most climate-vulnerable populations**, facing unique social, economic and environmental pressures

- Caribbean SIDS are **more frequently affected by severe weather events**, such as droughts, increasing surface air temperatures, and tropical storms

Highly exposed

Natural disasters occur more frequently and cost more on average in the Caribbean than elsewhere—even in comparison to other small states.



Sources: EM-DAT; IMF. 2016. "Small States' Resilience to Natural Disasters and Climate Change—Role for the IMF"; IMF, *World Economic Outlook*; World Bank, *World Development Indicators*; and authors' calculations.

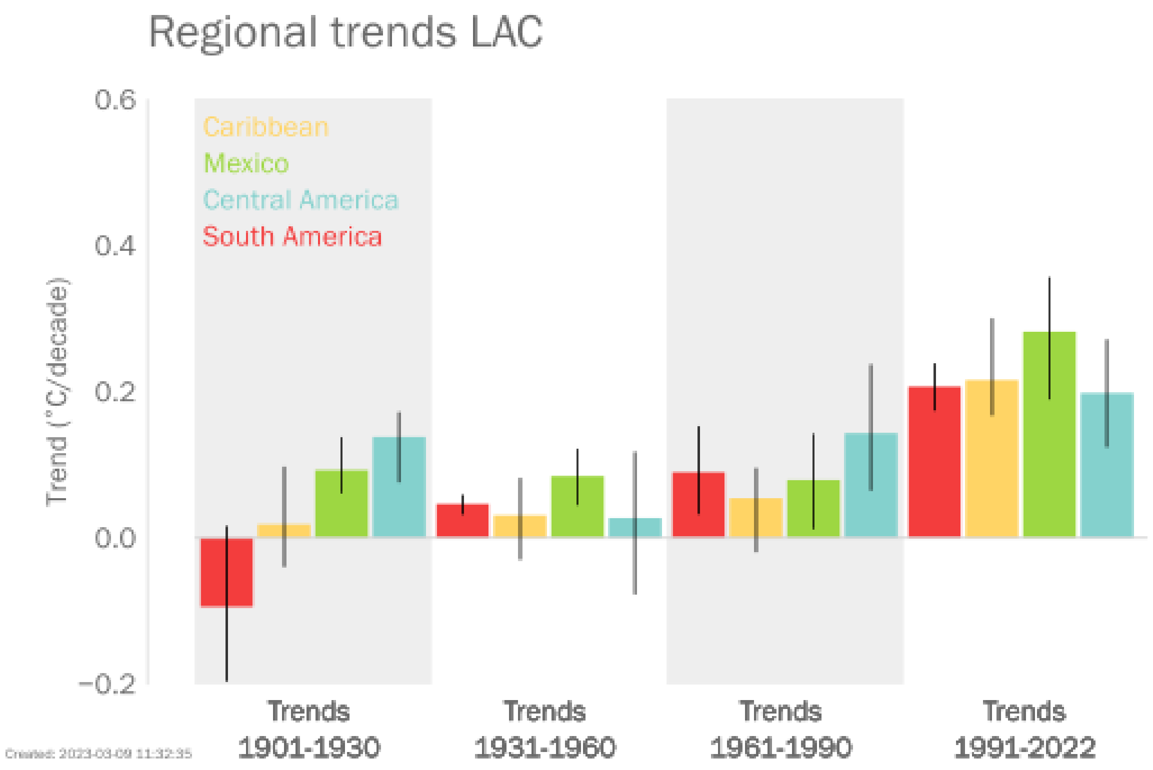
United Nations

CARIBBEAN energy

Increasing energy use in buildings

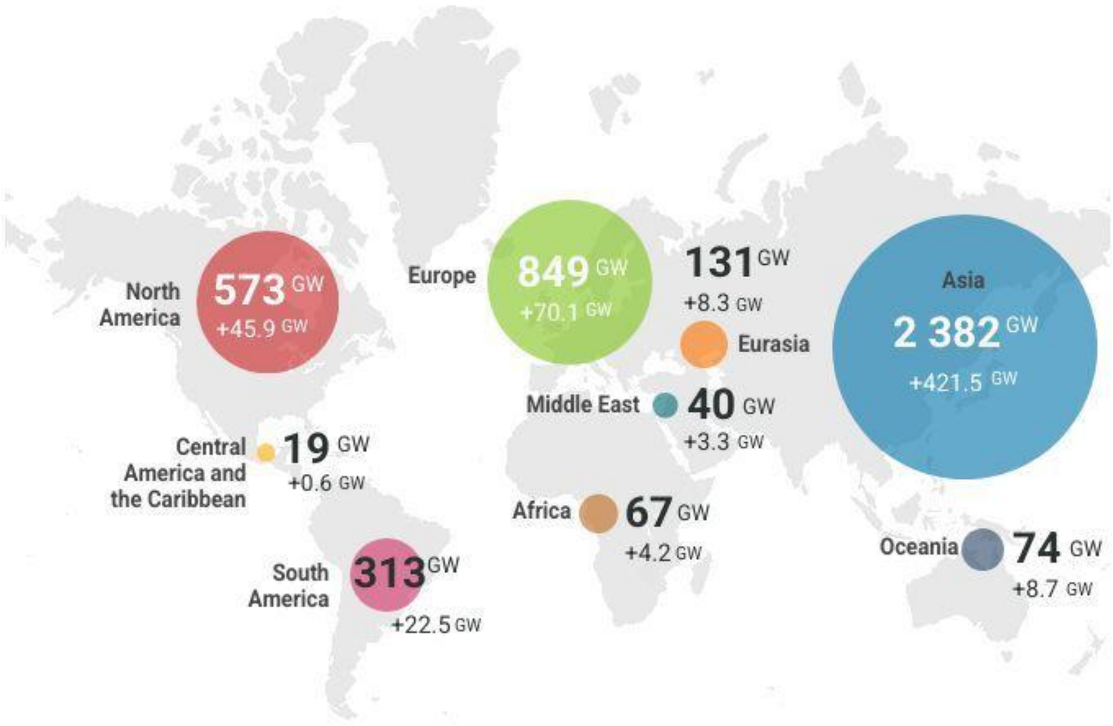
- Electricity consumption in Caribbean buildings has been on the rise for decades and is today aggravated by the **intensive use of air conditioning**, as a result from increasing temperatures

- This trend, coupled with **reliance on fossil fuels for electricity**, poses challenges for energy security and affordability in the region



Slow pace of decarbonization

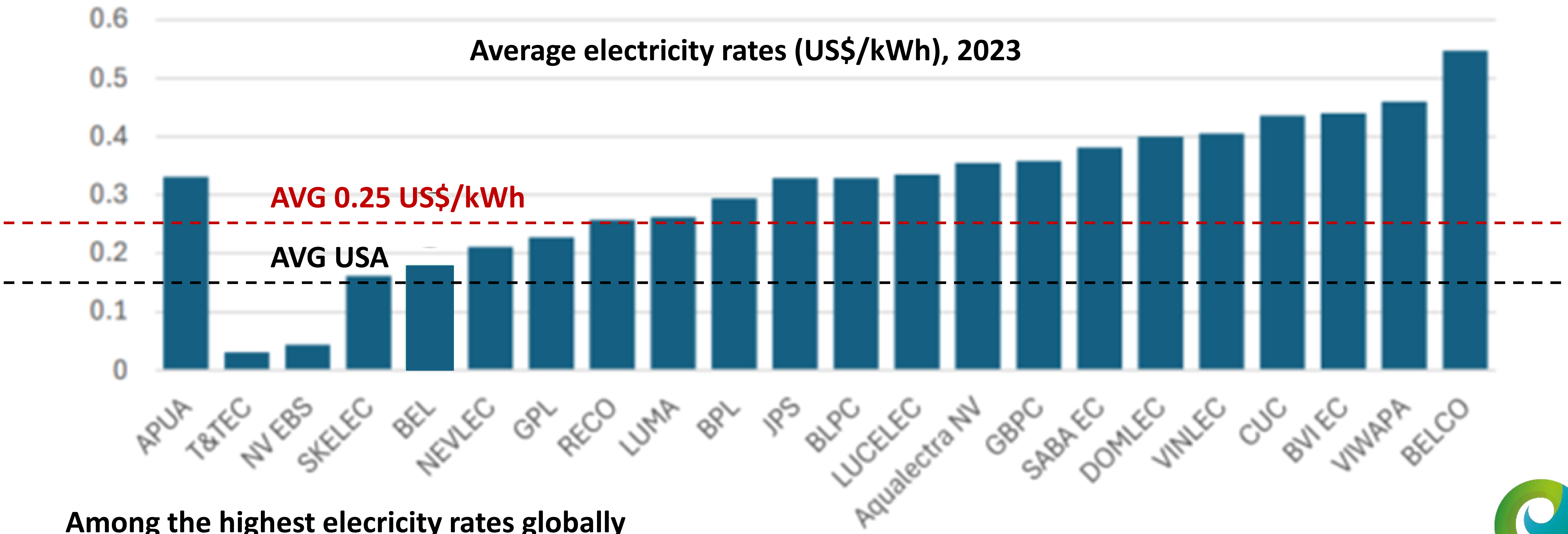
- Many Caribbean SIDS are pursuing renewable energy transitions to reduce reliance on fossil fuels and **lower electricity bills**
- Despite this, the progress of RES capacity additions has been slow, and the region has **the lowest renewable share** in the world
- EE can help steer this process



Renewable power capacity by region and additions in 2024

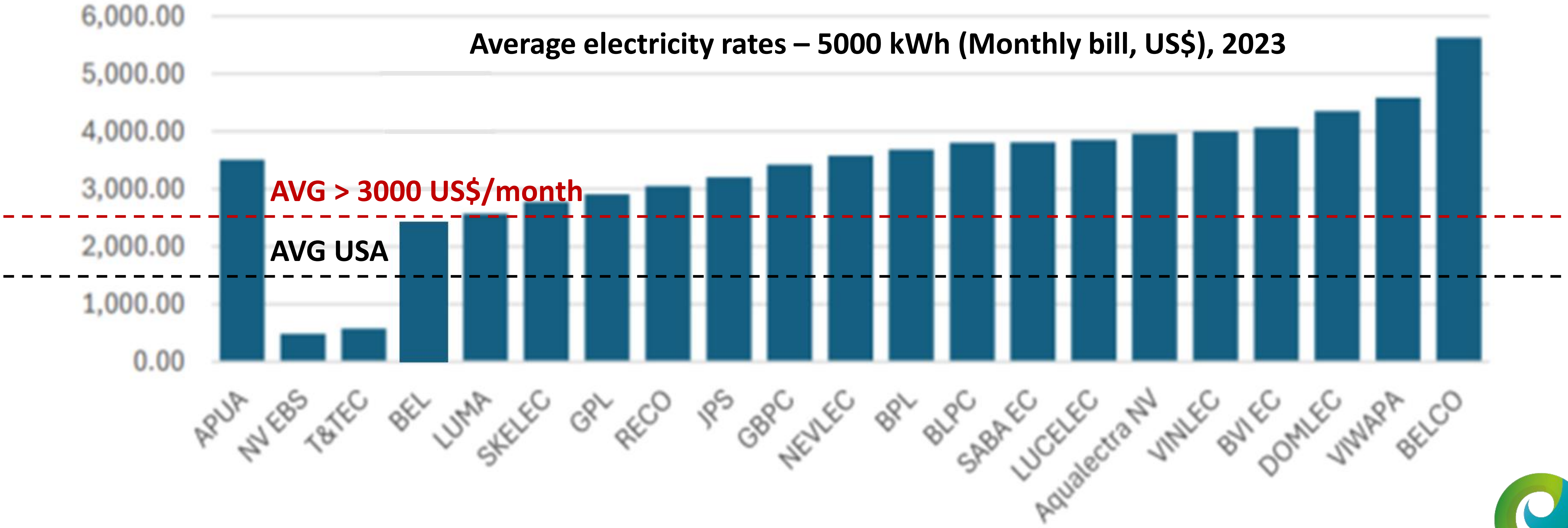
IRENA
International Renewable Energy Agency

Electricity rates for homes



Among the highest elecricity rates globally

Electricity bills in C&I sectors



Energy Service Companies (ESCOs)

ESCOs provide energy services to final energy users, including **energy auditing, supply and installation of energy efficient equipment**, and **refurbishment of buildings' envelope**, with view to achieving energy and environmental goals

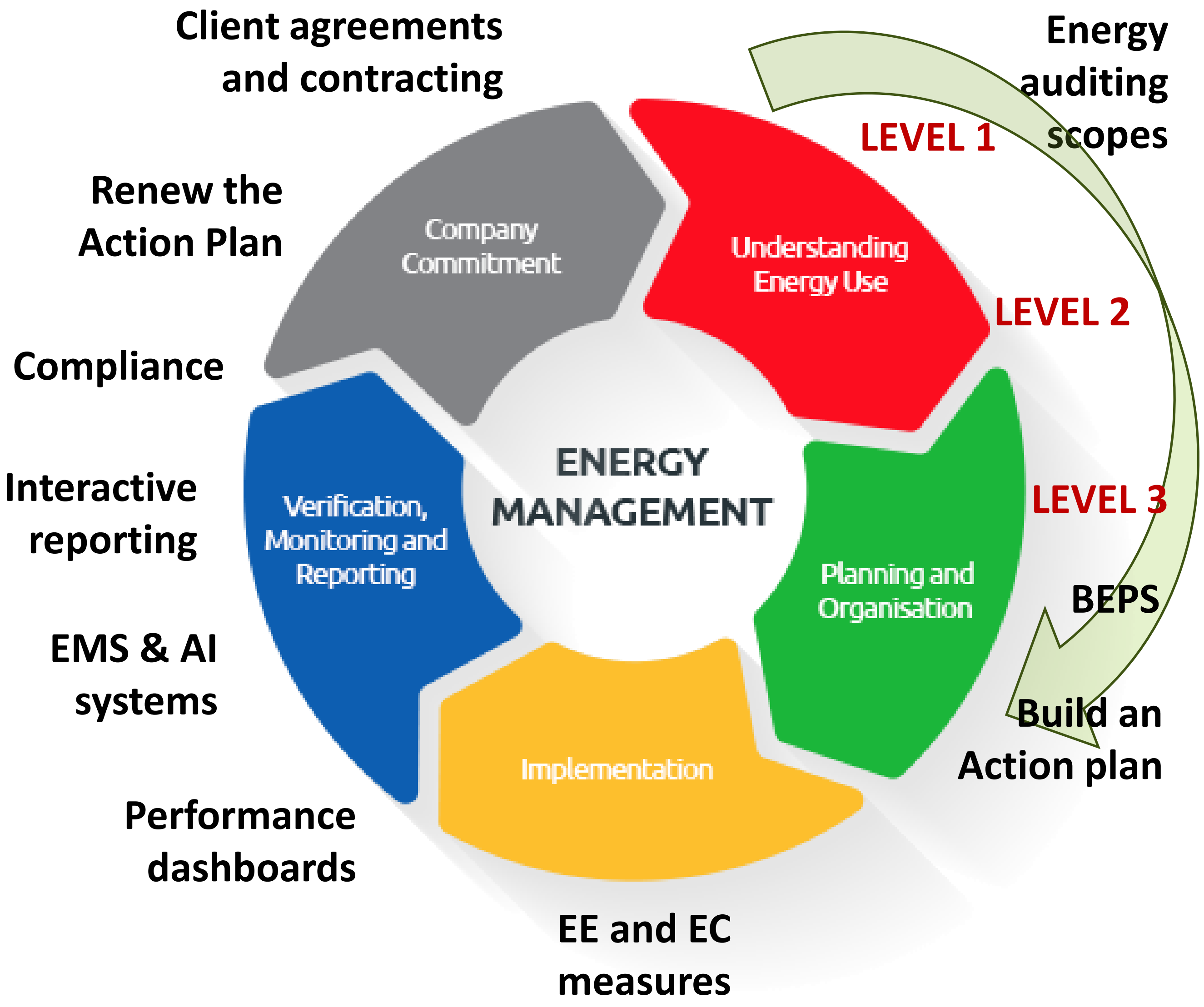
In which way are ESCOs different from traditional energy services companies?

ESCOs can finance or help facilitate the financing of the implementation of the solutions, and their remuneration is directly tied to the project's performance and resulting energy savings achieved – **PERFORMANCE CONTRACTING**

CARIBBEAN energy

Competences of ESCOs

- Energy audits are first step, with goal being to **understand energy use before making energy investments**
- ISO 50001 standard establishes activities across the energy management cycle, including implementation of energy efficiency or conservation measures
- After energy investments, comes M&V



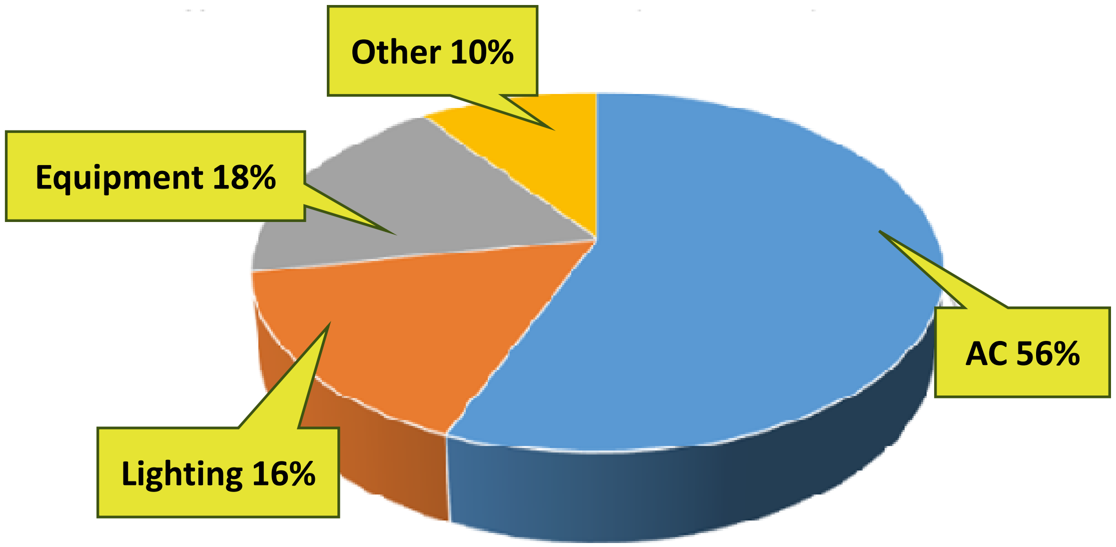
V.S Arunaachalam, 2023.

Popular energy measures for Caribbean SIDS

- **Low to medium-cost solutions**
  - Lighting substitution (80-90% savings) and lighting sensors (20-50% savings)
  - Behavioural change through training, and/or awareness campaigns…
  - Electric appliance timers
  - Create figure of "Energy Manager"

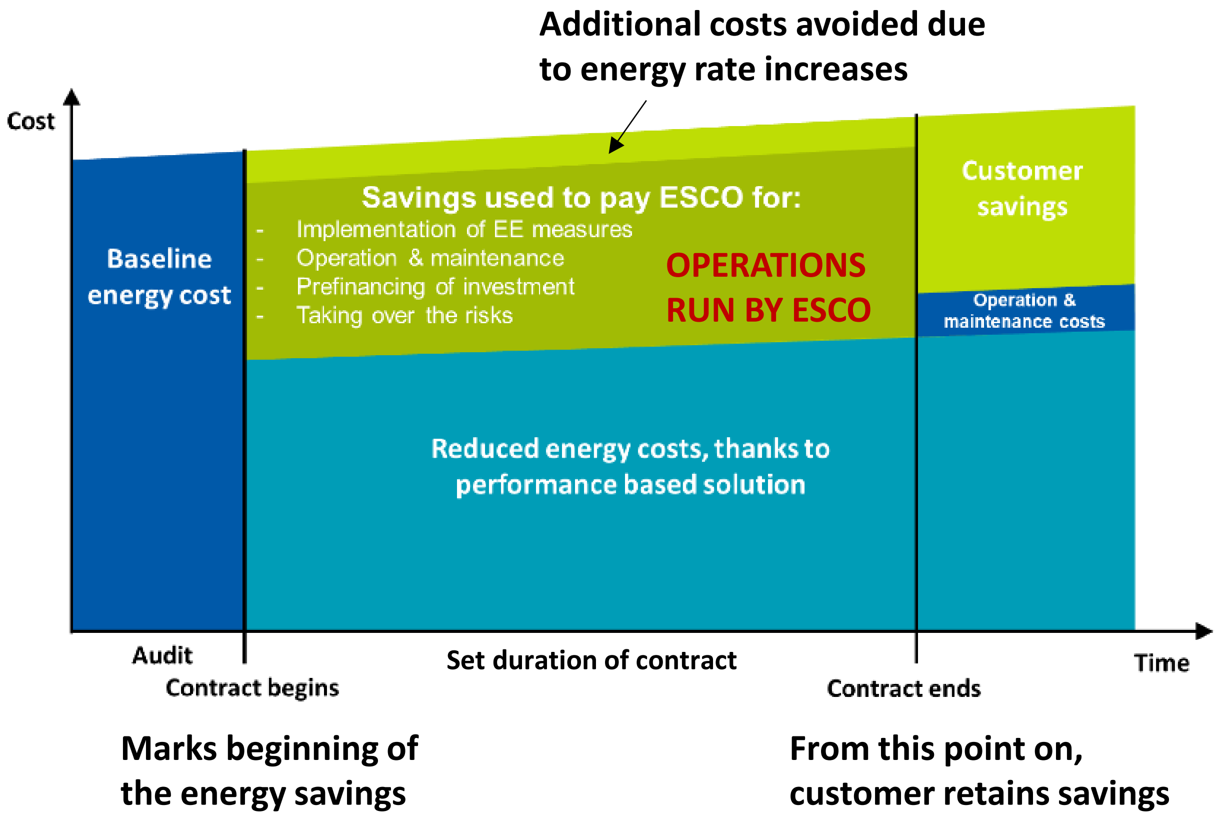
- **More sophisticated solutions**
  - Absorption chillers (colling from source of heat – Up to ≈80% savings) and other efficient HVAC systems (wide variety, available/O&M?)
  - Solar thermal collectors where applicable
  - Implementation of BEMS

Typical building energy consumption in tropical climates



Katili et al., 2015.

How performance contracting works



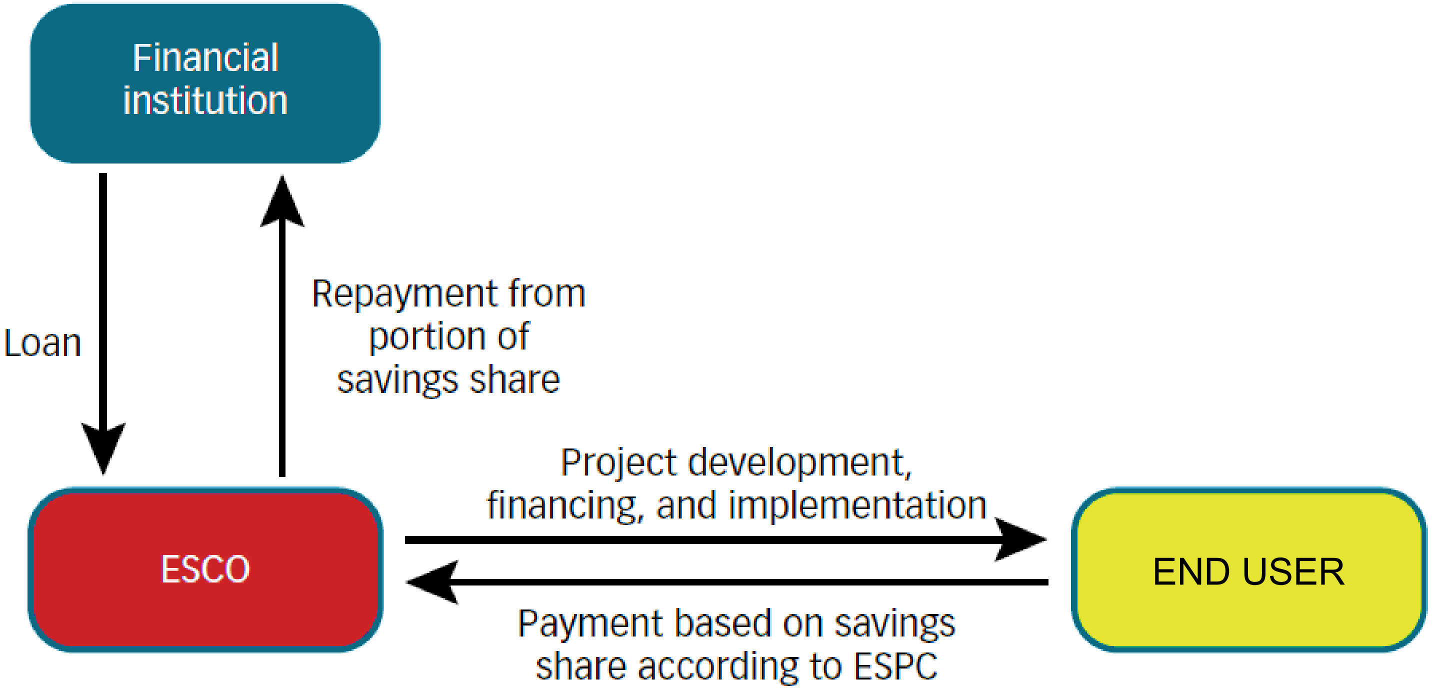
1. After the energy efficiency investment takes place, **a share or the total savings are used to pay for the project**, as stipulated in an energy services performance contract (ESPC)

2. This exchange takes place for **a period set in the ESPC**, depending on level of investment

3. As the contract expires and the project is paid, **the client will be able to retain the whole share of the savings**

The *Shared Savings* ESCO model

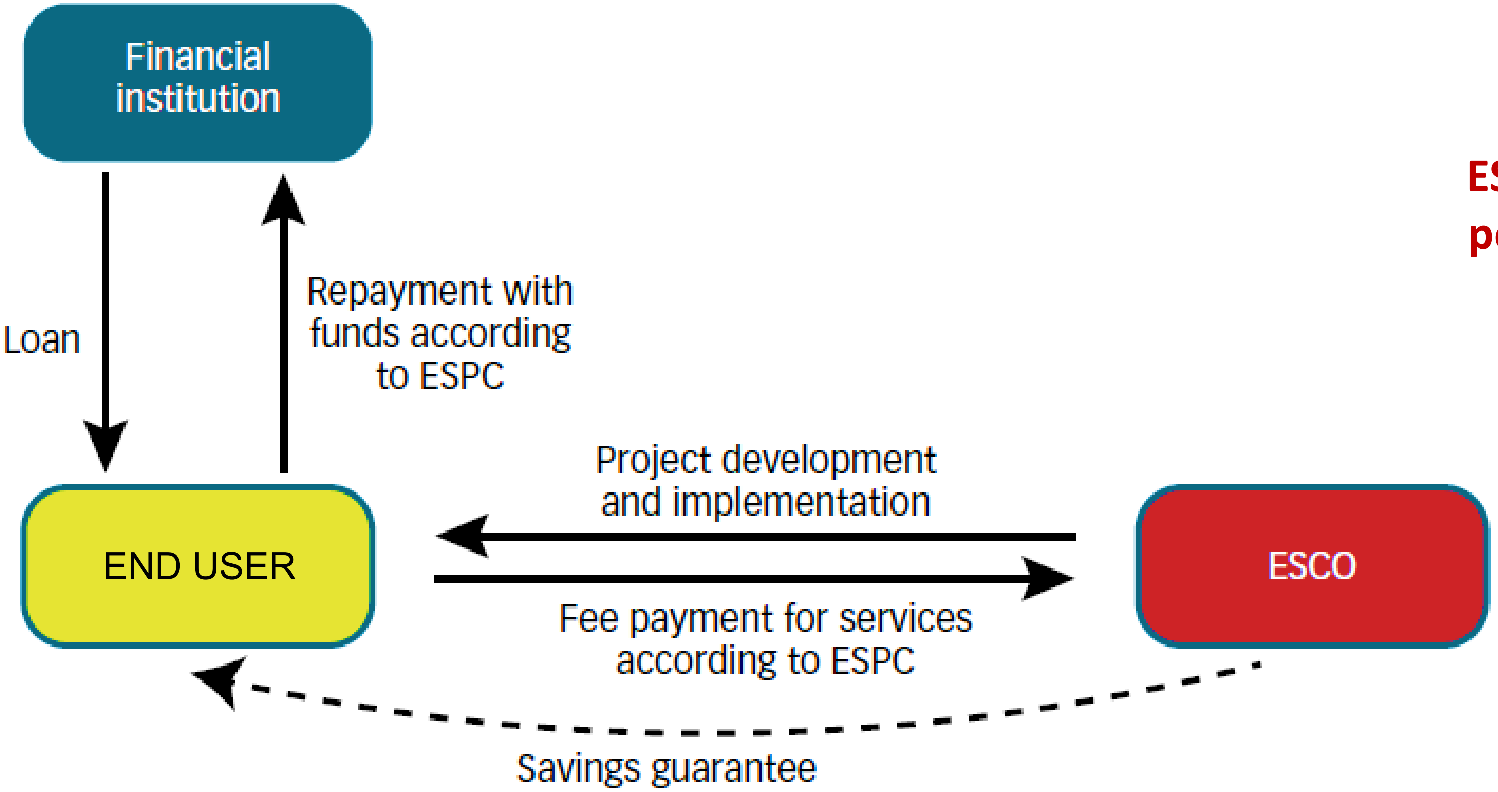
Banks, private funds…



ESCO takes both the financial and the performance risks of the project

The *Guaranteed Savings* ESCO model

Banks, private funds…

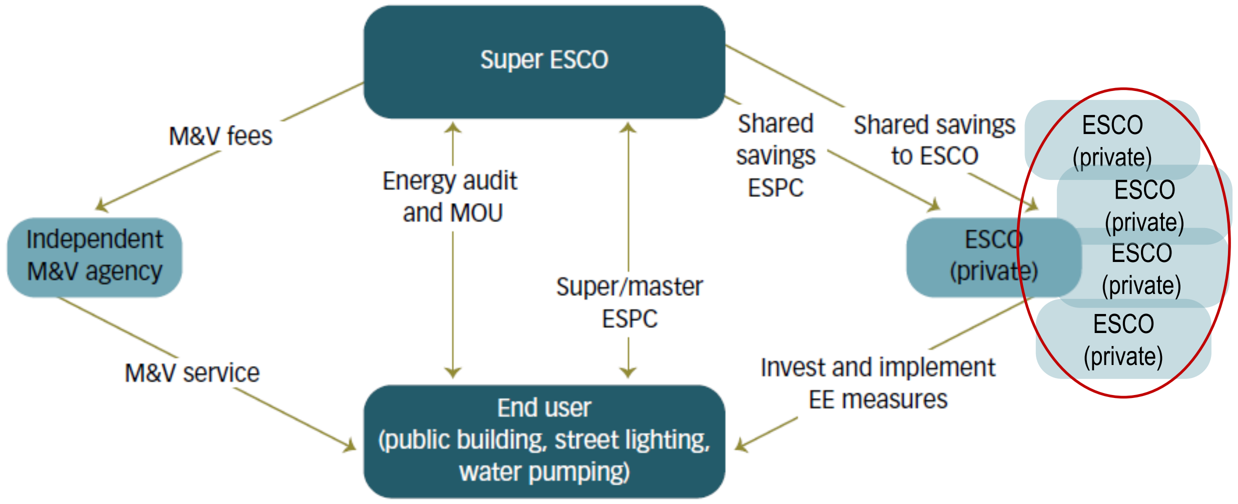


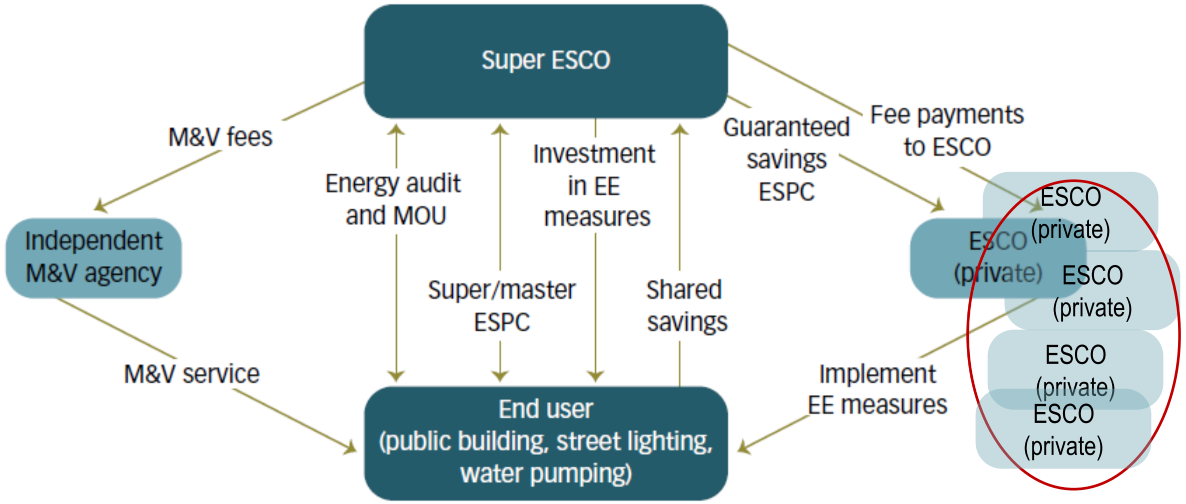
ESCO takes only the performance risk of the project

WORLD BANK GROUP

Super ESCOS as facilitators of the EE market

Entities that operate not only as an ESCO for the public sector, but also as a **driving force for the growth of the performance contracting market**, leveraging government and/or other funds to drive EE programmes and support private ESCOS in varied ways[1]





[1]Most common model of Super ESCO (public)

Conclusions

Energy efficiency (EE) is a critical vector of the clean energy transition, supporting energy security and affordability, while helping our society care for the next generations

- For the Caribbean SIDS, which face unique energy challenges, such as **high energy intensity** and **high costs of electricity** across all sectors, EE is a logical and necessary investment
- **Performance contracting approaches led by ESCOs** could lend the Caribbean's EE market more confidence and unlock energy efficiency projects, by guaranteeing technical capacity and the necessary savings to recover debt from EE measures
- ESCOS can also help tackle **reluctance**, **lack of financial ability** or **unwillingness** to fund transformational EE projects, all of which are relevant in the complex socio-economic context of Caribbean SIDS
- In markets that need stronger early support **Super ESCOs could play a role** in breaking market barriers

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