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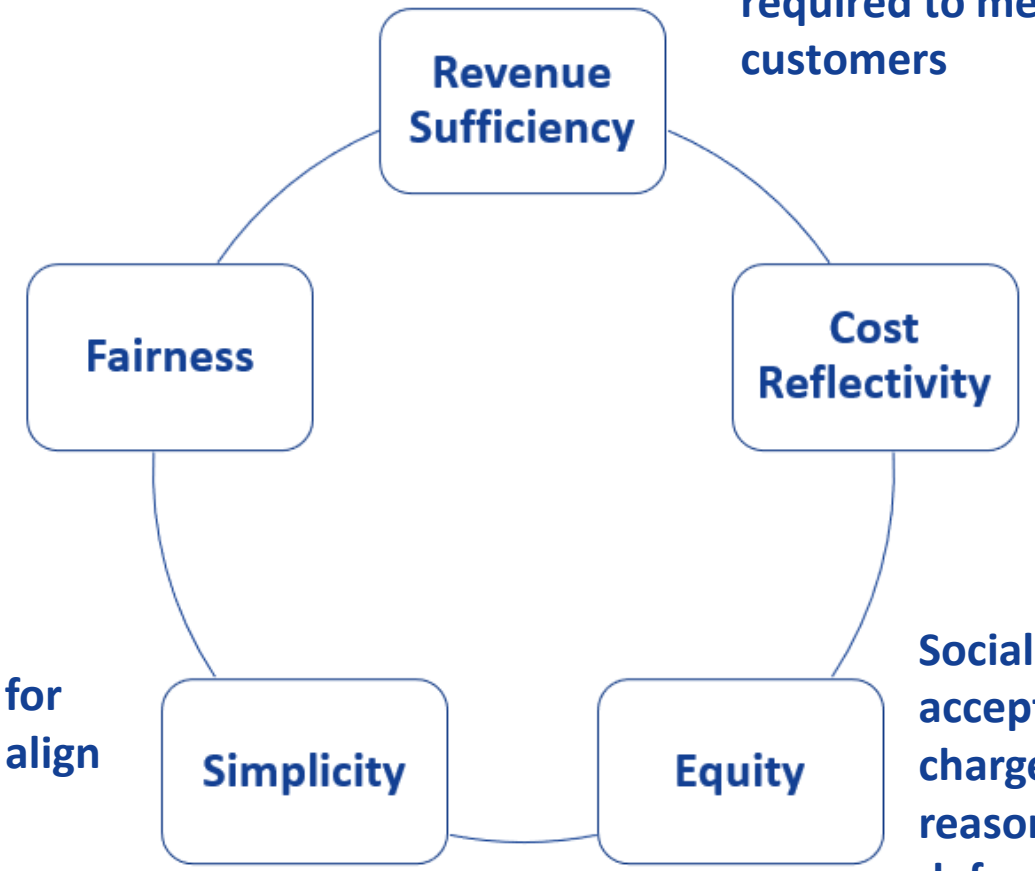
DG Tariffs, Principles and Compensation

DG Tariff Design Principles

Utilities must recover the revenue required to meet costs driven by DG customers



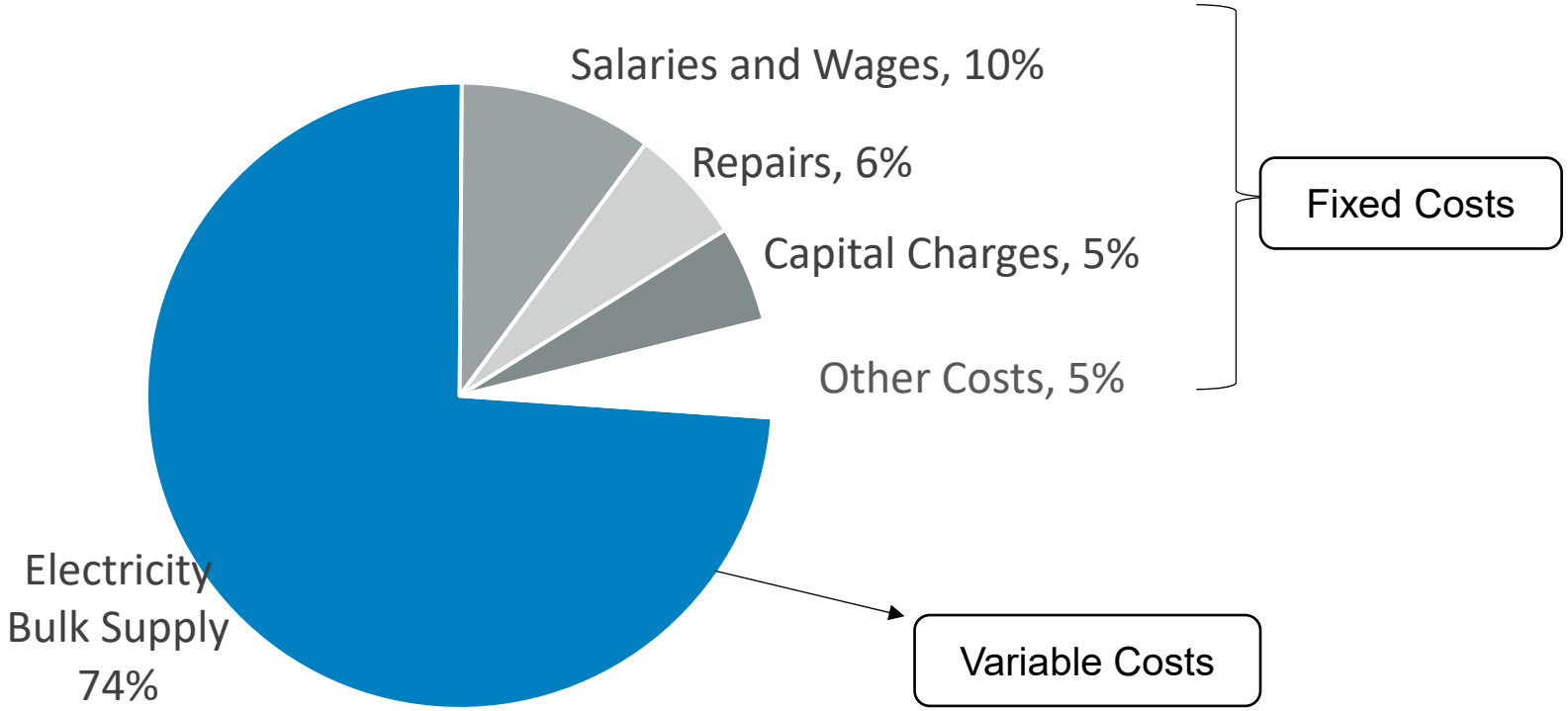
Customers pay their fair share, without 'cost shifting' to non-DG customers.

Take costs associated with the DG customers into consideration

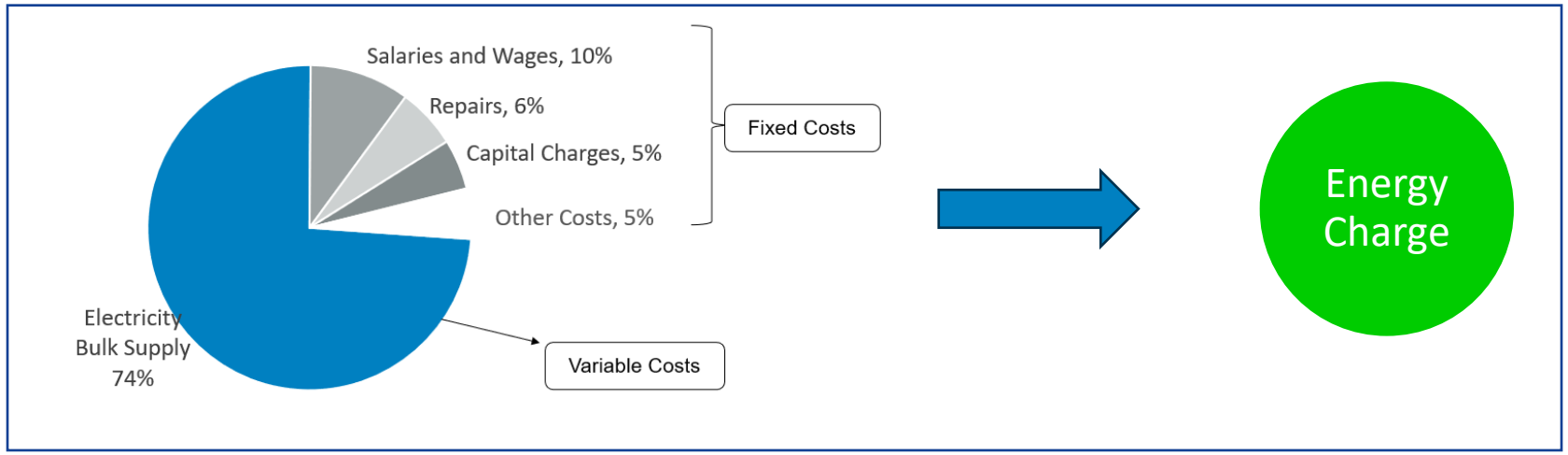
Simple tariff structures - easy for customers to understand and align with metering abilities.

Social acceptability; charges are reasonable and defensible

Average costs of distribution utilities



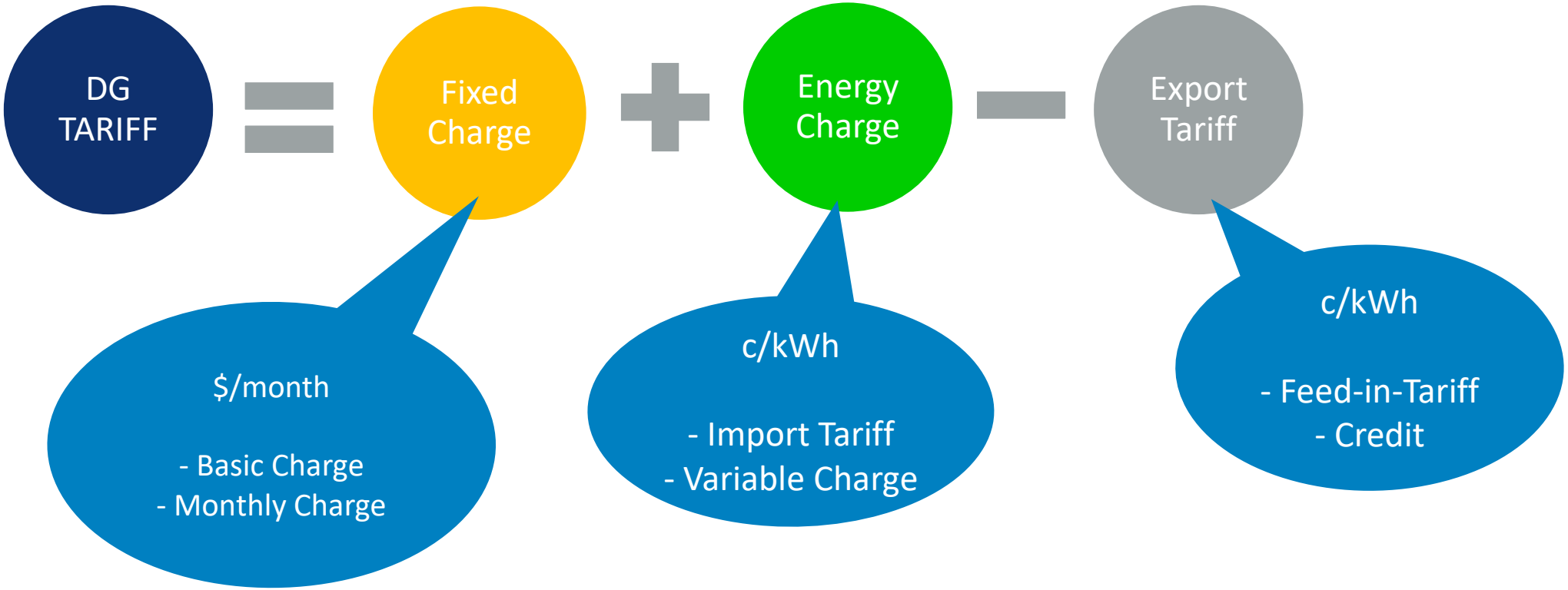
Average costs of distribution utilities



Typically, these costs are recovered through a single bundled variable charge (c/kWh)

- With decreasing consumption due to Distributed Generation, less of these costs can be recovered.
- It is therefore important to unbundle tariffs into representative tariff components: fixed costs, variable, demand.

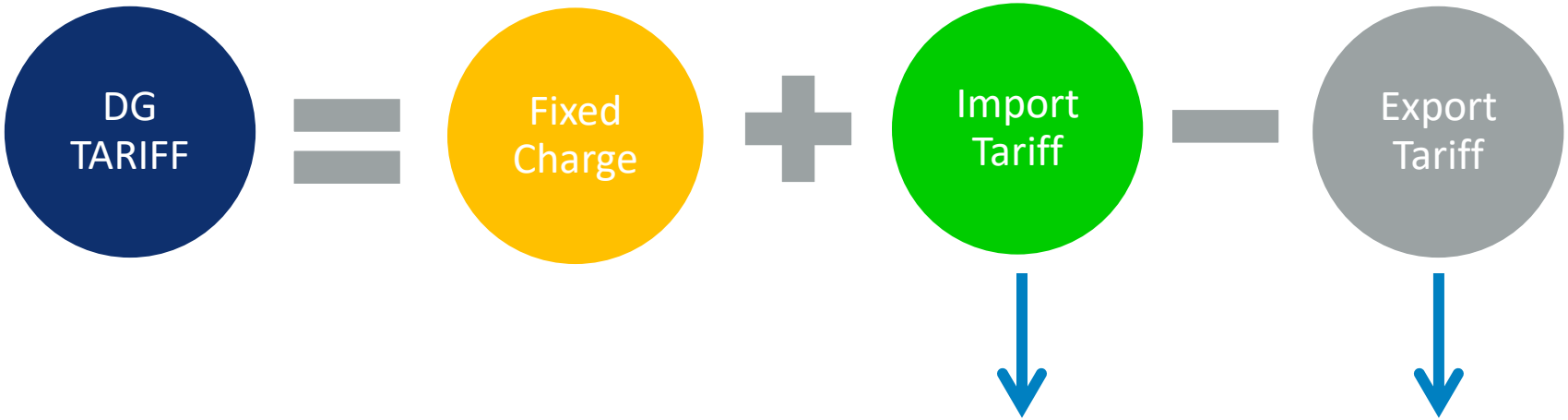
Typical DG Tariff Components



Other tariff components:

- Demand charges ($/kVA)

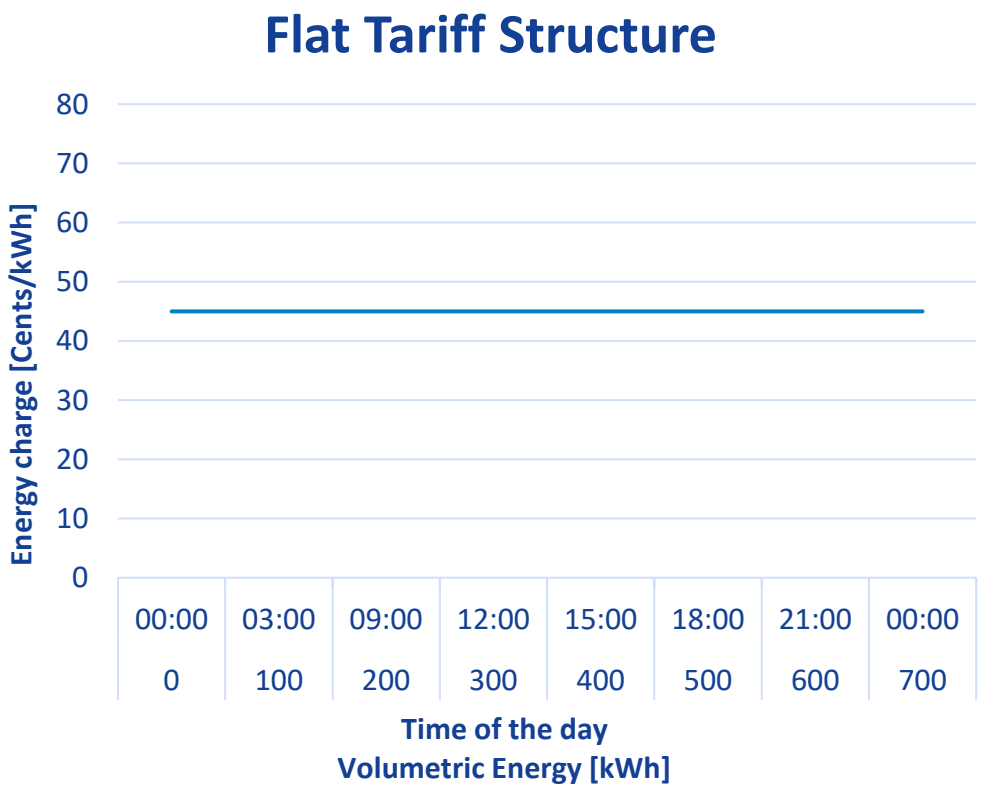
DG Tariffs Components



Three typical tariff structures:

- Time of Use (ToU) Tariffs
- Flat Tariffs
- Inclining Block Tariffs (IBT)

Impact of introducing Flat DG Tariff structures



Import impact:

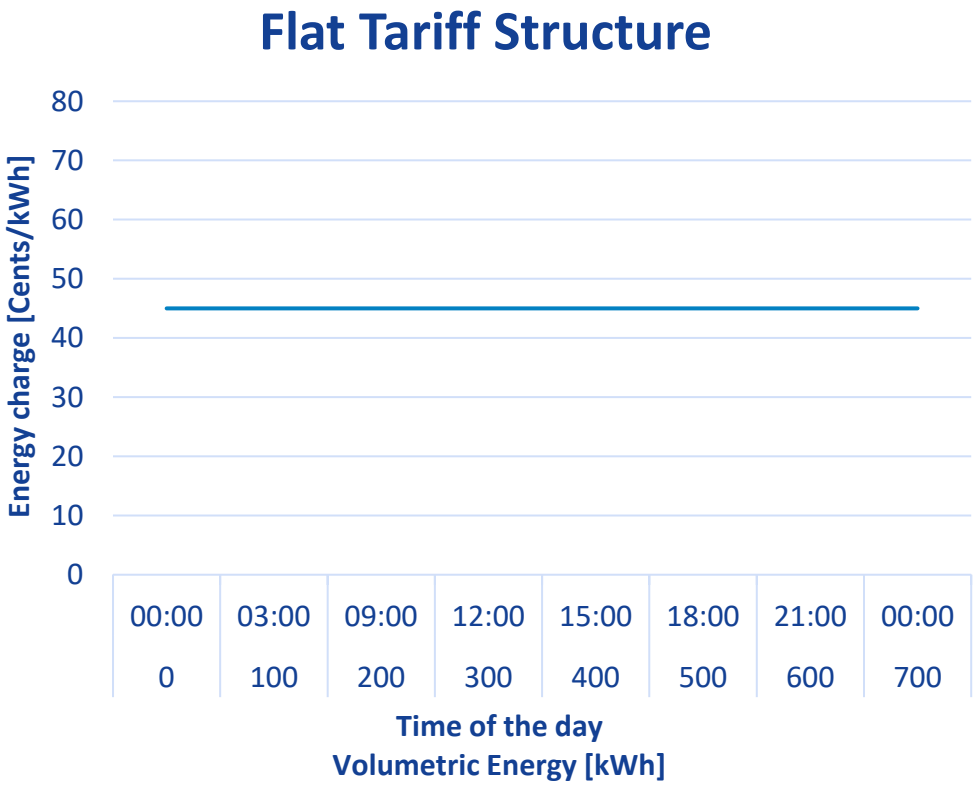
Pros:

- Requires simple metering and billing systems, making it easy to implement and adopt.

Cons:

- When the tariff is pegged at the standard/off-peak rate, the utility expenditure in providing electricity during peak times is not recovered.
- When the tariff is pegged at the peak demand rate, the utility overcharges the customer for electricity sold to the customer during off-peak times. This may discourage customers from installing or registering their DG systems.

Impact of introducing Flat DG Tariff structures



Export impact:

Pros:

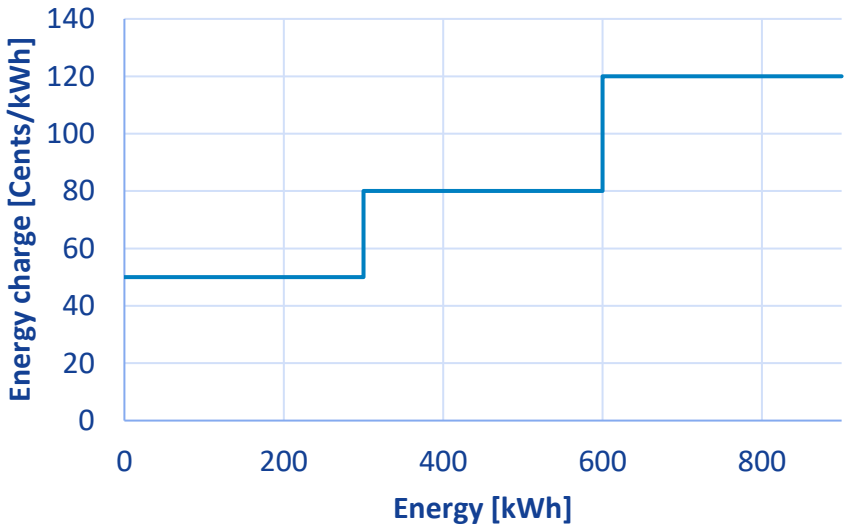
- Encourages customers to export into the grid as payouts are directly proportional to the volume fed into the grid.
- When the tariff is pegged at the standard/off-peak rate, the utility benefits from buying “high-value energy units” at lower costs.

Cons:

- When the tariff is pegged at the peak demand rate, the utility will pay more for “low-value energy units” which are fed-in during low demand times.

Impact of Introducing Inclining Block DG Tariff structures

Inclining Block Tariff Structure



Import impact:

Pros:

- Requires simpler metering and billing systems.

Cons:

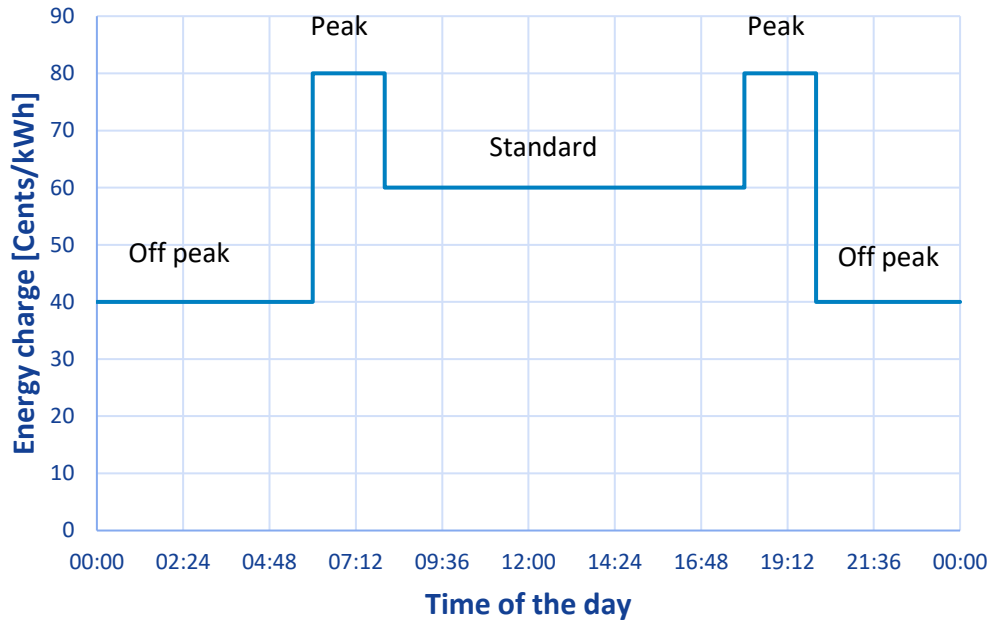
- Customers are likely to remain in the first block as part of their energy is supplied by DG, thus utility revenue from higher blocks is not realised.

Export impact:

- Customers will be encouraged to export more to the grid to realise higher payouts from higher blocks.

Impact of Introducing Time of Use DG Tariff structures

Time of Use Tariff Structure



Import impact:

Pros:

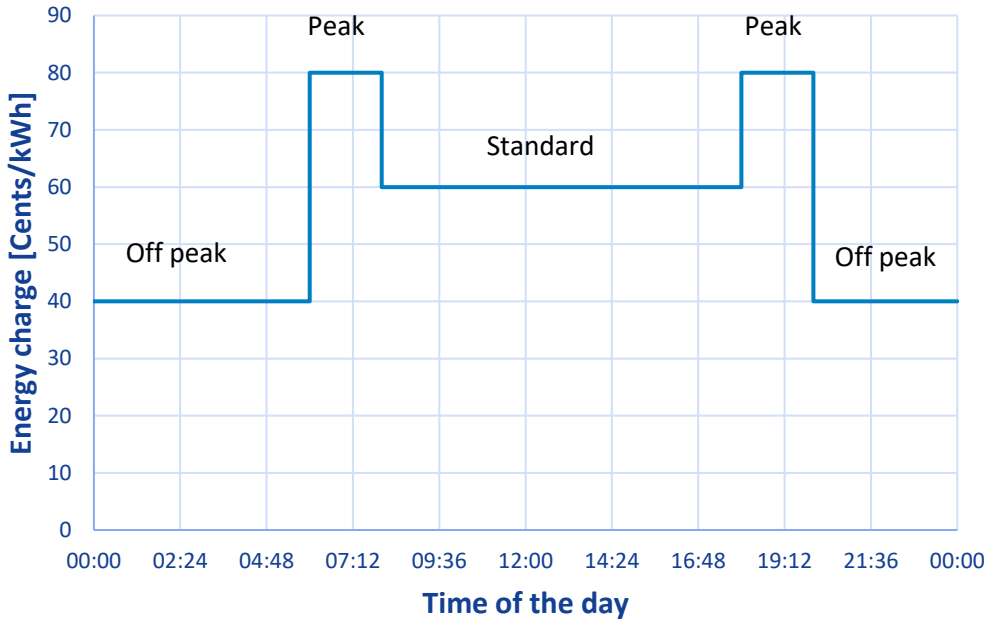
- Enables the utility to recover costs incurred in providing energy at peak times through higher pricing during peak times.
- Enables utility to manage demand by discouraging excess electricity consumption at peak times through higher pricing.

Cons:

- Requires ToU metering which is complex and requires expensive meters and billing system abilities.

Impact of Introducing Time of Use DG Tariff structures

Time of Use Tariff Structure

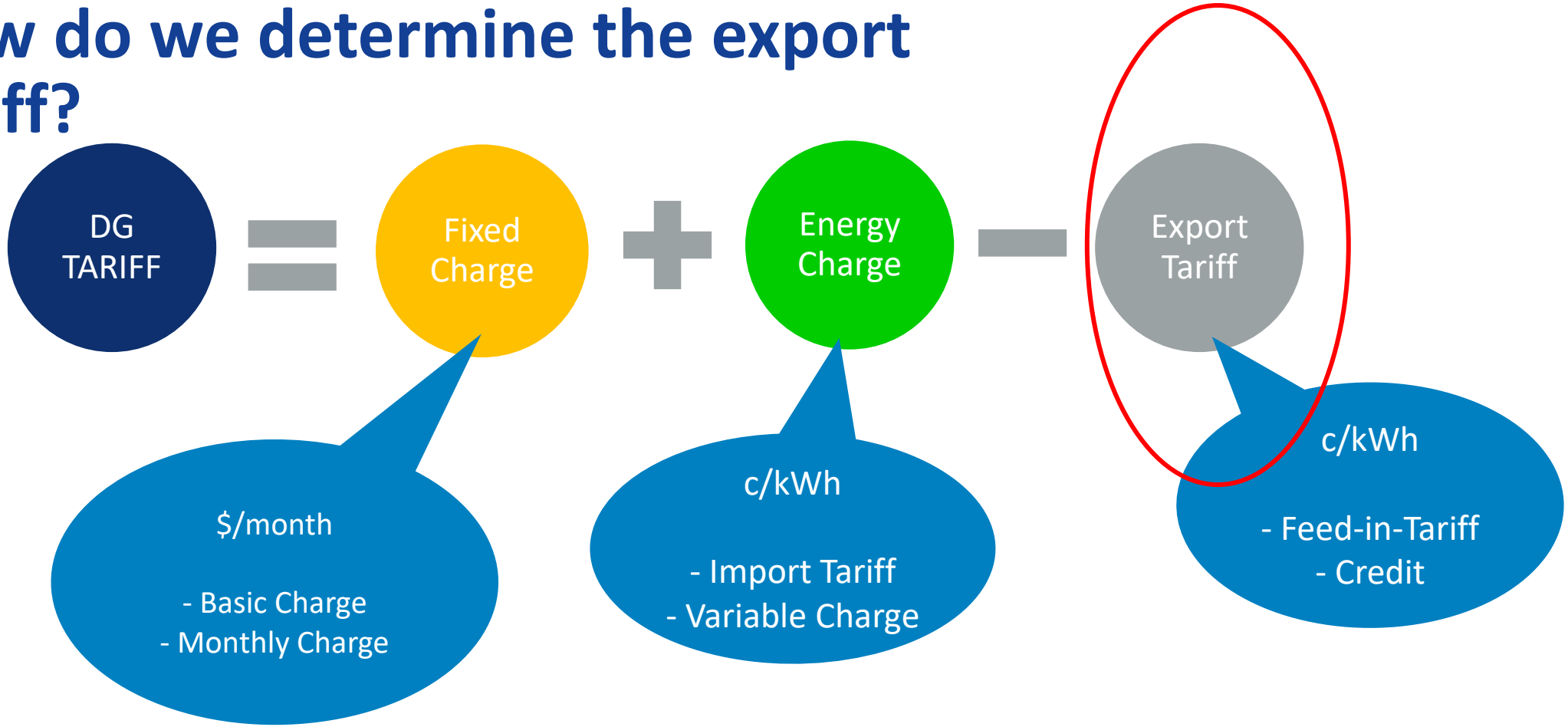


Export impact:

Pros:

- Encourages customers to feed into the grid at peak-demand times, allowing the utility to procure high-value energy units for cheaper.
- The prospect of higher payouts at peak times frames a reasonable business case for the customer, encouraging the installation and registration of DG systems.

How do we determine the export tariff?

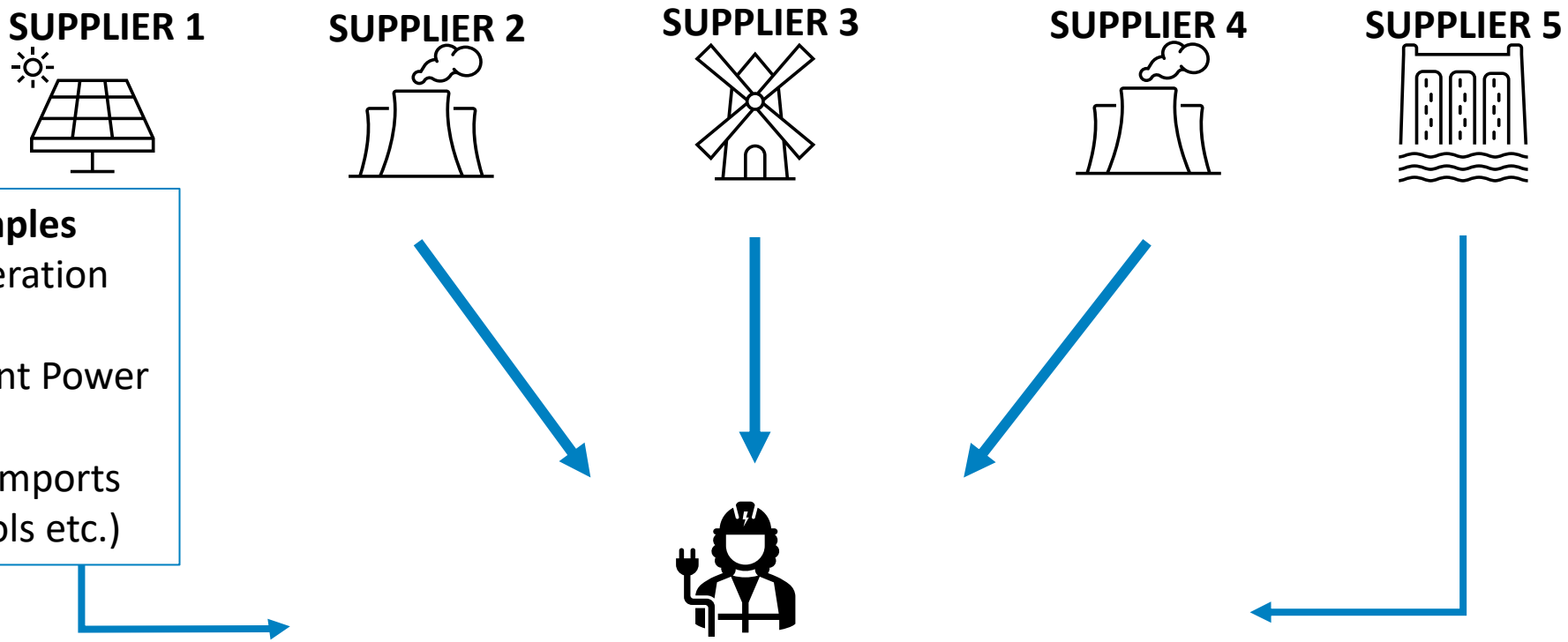


Other tariff components:

- Demand charges ($/kVA)

STEP 1: Determine the Bulk Supply Costs

Who supplies your distribution utility/unit with electricity?

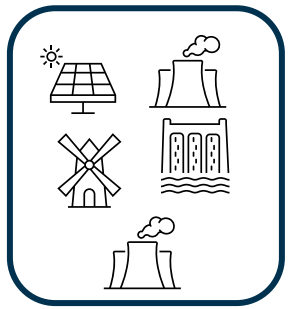


STEP 2: Simplified Avoided Cost Calculation

What is the average avoided cost ?

PURCHASE COSTS **TECHNICAL LOSSES**

AVOIDED COSTS =



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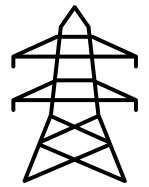

AVOIDED COST = AVERAGE PURCHASE PRICE x (1 + % TECHNICAL LOSSES)

Avoided Costs (c/kWh)		
		Price (c/kWh)
High Season	Off-peak	118,635
	Standard	165,55
	Peak	189,2
Low Season	Off-peak	104,665
	Standard	118,91
	Peak	158,4

=

Average Purchase Price		
		Price (c/kWh)
High Season	Off-peak	107,85
	Standard	150,5
	Peak	172
Low Season	Off-peak	95,15
	Standard	108,1
	Peak	144

+ **10% Technical Losses**

Thank you for your attention

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