THE ELECTRICITY SUPPLY CORPORATION OF MALAWI LTD

BASE TARIFF APPLICATION

THE 2018 – 2022

By
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Chief Executive Officer

Presentation Outline

1. The New ESCOM and its Mandate
2. The Main Objectives of this Base Tariff
3. ESCOM's new Business Approach
4. Key Fundamentals for this Base Tariff
5. Supporting documents for the Base Tariff
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7. Base Tariff for the Single Buyer
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9. Base Tariff for Transmission Licensee

Presentation Outline - Continued

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11. Base Tariff for Bulk Purchase
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13. Base Tariff Cost of Service Study
14. Recommended average Base Tariff per tariff category
15. Stakeholder Gains to be realized
16. Outcome Scenarios
17. Concluding remarks

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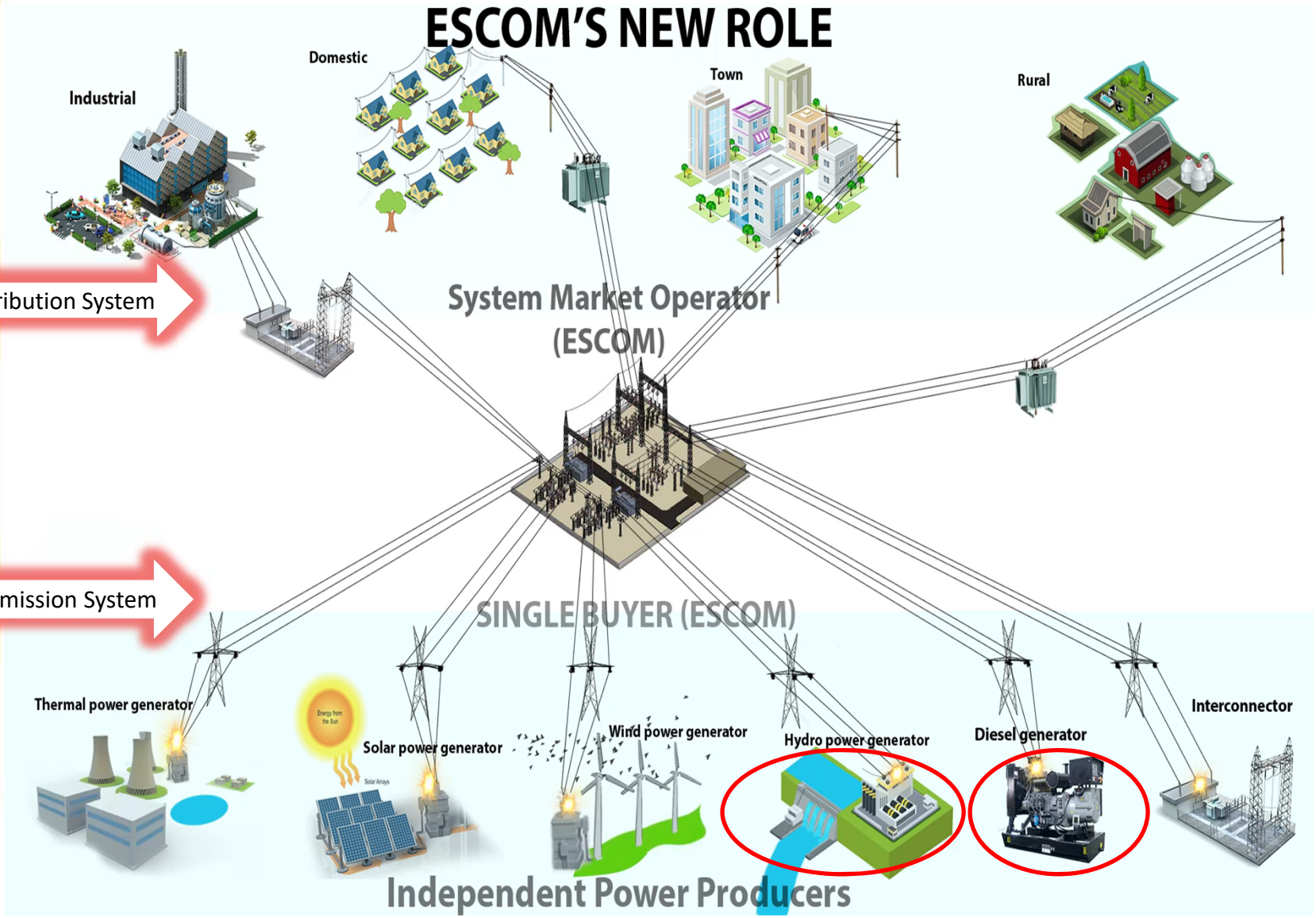
ESCOM'S NEW MANDATE



New ESCOM's Functions

Division	Main Functions
Single Buyer	System Planning & Load forecasting Schedule investment plans Sign power purchase agreements with power suppliers Settle Payments for all players
Market System Operator	Ensure fair access to the market for Power Sources Regulate operations of the market Ensure economic dispatch of power
Transmission	Plan , operate and maintain the transmission network Evacuate power from power sources and transfer to main load center
Distribution	Plan , operate and maintain the Distribution network Interface with customers and provide customer service

Recent Experiences

- Over 95% of the country's generation where ESCOM is now buying power is hydro based.
- Our supplier EGENCO could not supply the power that we required due to low flow of water. As a result of the recent drought it was not possible to buy power to meet the demand.
- We started rationing the power. Initially customers were staying about 24 hours without power. Supply to domestic customers reduced to 33% while supply to industry reduced to about 75%. Currently on track for improvement.
- ESCOM had to go into a contract with Aggreko to supply 78 MW for a maximum of 2 years.
- This reduced the load shedding hours to 6hrs for domestic customers and 1-2 days for industrial customers.
- ESCOM is on track to improve the capacity situation.
- Increasing losses due to theft of power
- Supply chain challenges
- Poor Cooperate image

REFOCUSED ESCOM

- In the new electricity market ESCOM had to refocus its vision to be a world class utility, **power all day**.
- A preferred supplier of electrical energy,
  - charcoal and fuel wood producers and their impact on the environment can not be ignored.
  - It has to compete with its own past performance
- Performance planned to satisfy
  - Regulator's requirements
  - Customers service requirements
  - Shareholder requirements
  - Electricity market players' requirements

Refocused ESCOM

- A robust Strategic Plan to running from 2018 to 2022.
- Re-engineering and integration of the Business process through implementation of the EMIS project.
- Improved procurement and inventory management procedures. Removing unnecessary middle men in the procurement process
- Investigating previous misprocurements
- Cost reduction e.g. Loss reductions based on intelligent systems
- Outsourcing to increase productivity and cut costs

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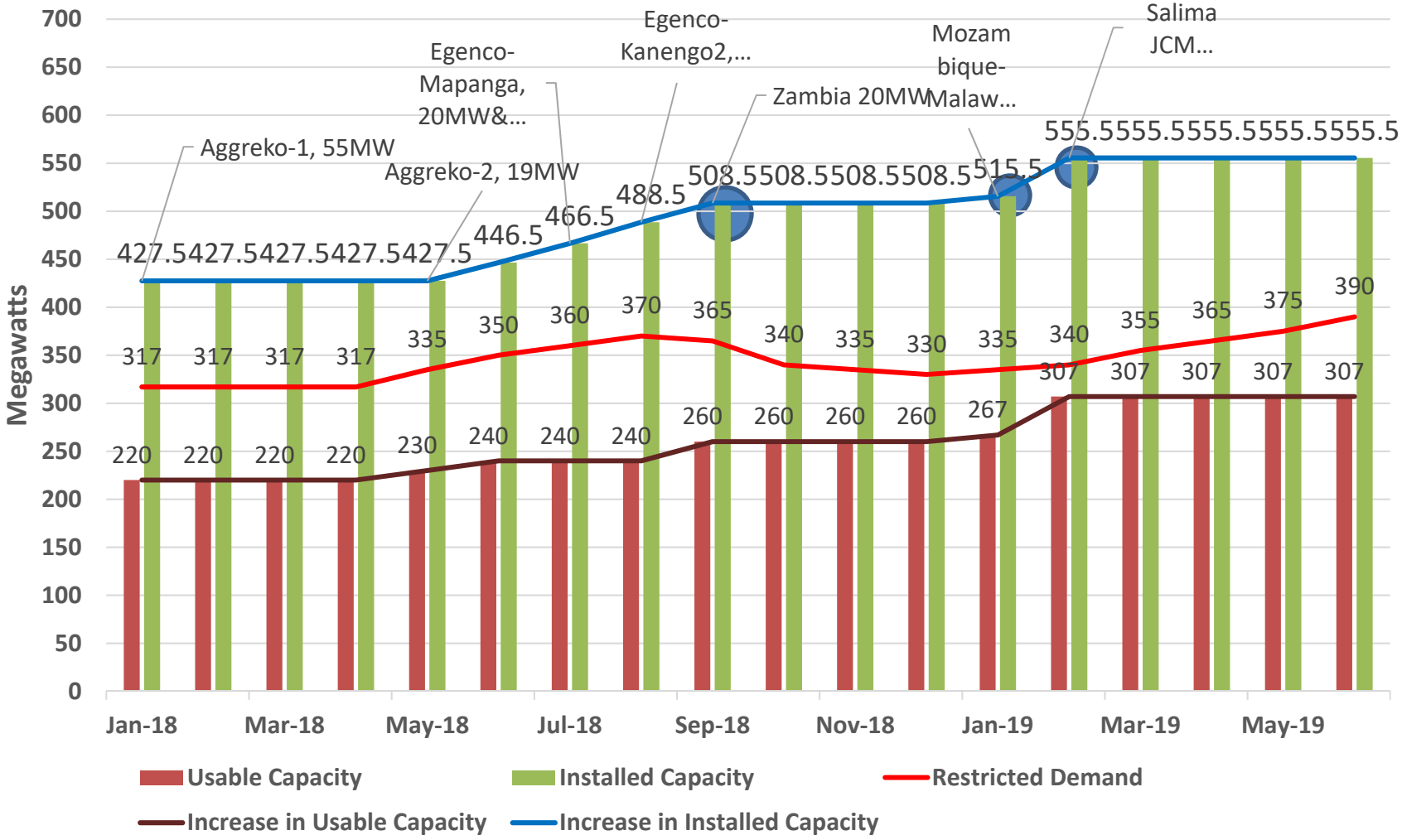
Refocused ESCOM

- Optimization of resources eg through functional review, transport, office accommodation
- Eliminating bad debts by installing prepaid meters for both small and large power users
- Elimination of propagation of poor customer service
- Tip Off anonymous for members of the public to report any incidences of abuse or corrupt practices
- Advanced controls to detect and prevent cases of fraud resulting in:
  - Exposed theft cases
  - Exposure of a curtail of illegal contractors and electricians
  - Over 300 cases of electricity theft through meter tampers and bypasses (Name and shame)

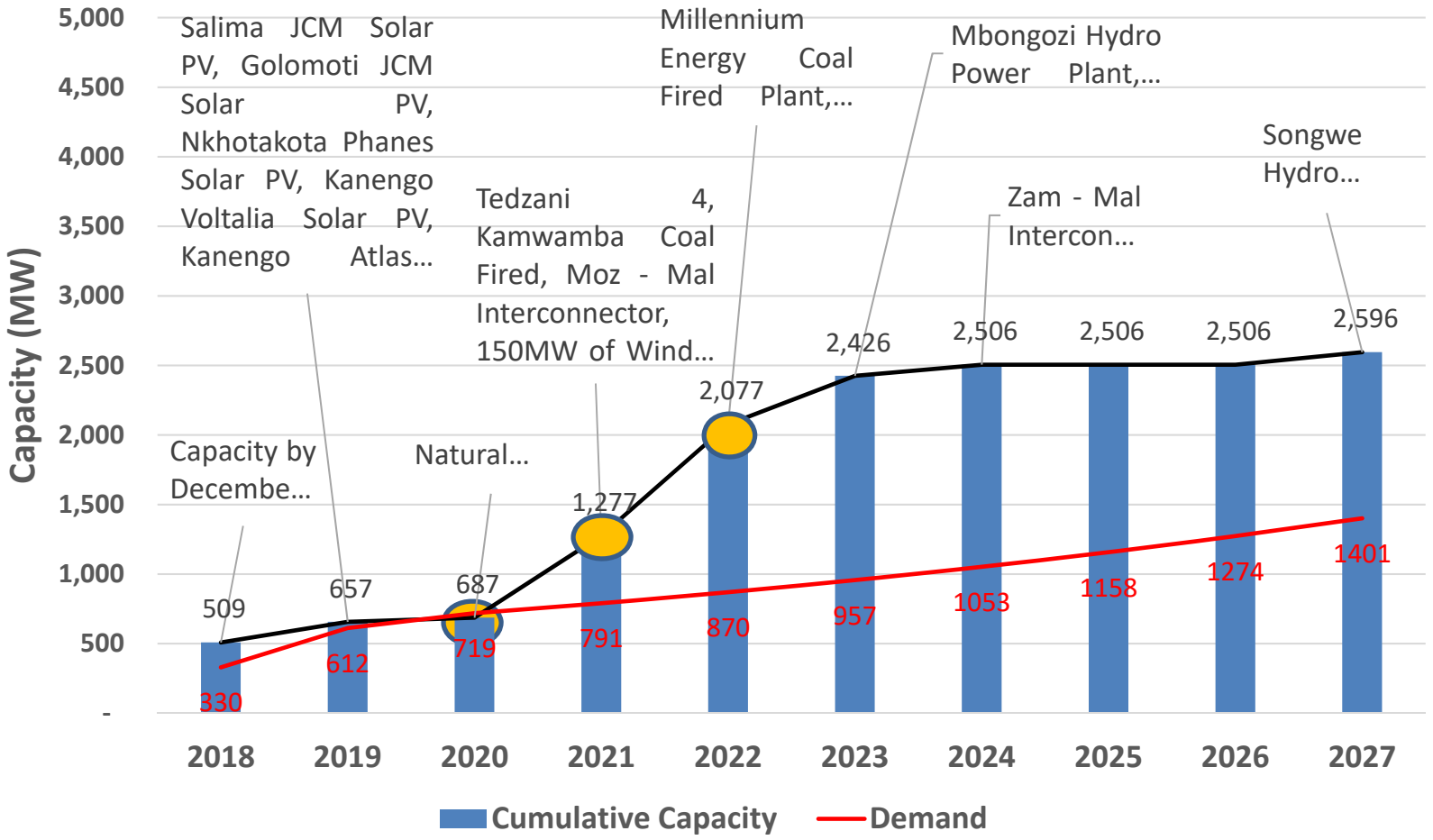
EXTERNAL SAFEGUARDS

- Declaration of assets to detect corruption
- Imperative oversight roles
  - Board, MERA, PAC, MNREM, Various Government Departments (PPDA, MoF, MoJ&CA, ACB)
- Public scrutiny
- A performance management system that links the shareholder's aspirations to all employees through the CEO and the Management team.

Additional Short Term Power Supply Interventions And Situation Between June 2018 and June 2019



Medium Term Power Supply Road Map from 2019



Key Objectives of the Base Tariff

a. To efficiently operate the existing system

b. To serve our Customers better

c. To increase access to electricity in support of the National Electrification Access target of 30% by 2030

d. To procure least cost power in line with Malawi's Integrated Resource Plan to meet demand and ensure reliability and sustainability of the Energy Industry

e. Pay power suppliers / producers and all players on time

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Base Tariff Guiding Documents

a. ESCOM Integrated Strategic Plan (2017 -2022)

b. MERA's Regulatory Instruments and Guidelines

c. ESCOM investment plan (2018-2023)

d. Malawi Growth and Development Goals (MGDS III)

e. The National Energy Policy (2017)

f. Malawi Government Integrated Resource Plans (2017 -2037)

g. Cost Of Service Study by ECA consulting (2018)

Key Fundamentals of the Plan

a) Tariff development based on the **New Tariff Methodology** issued by MERA

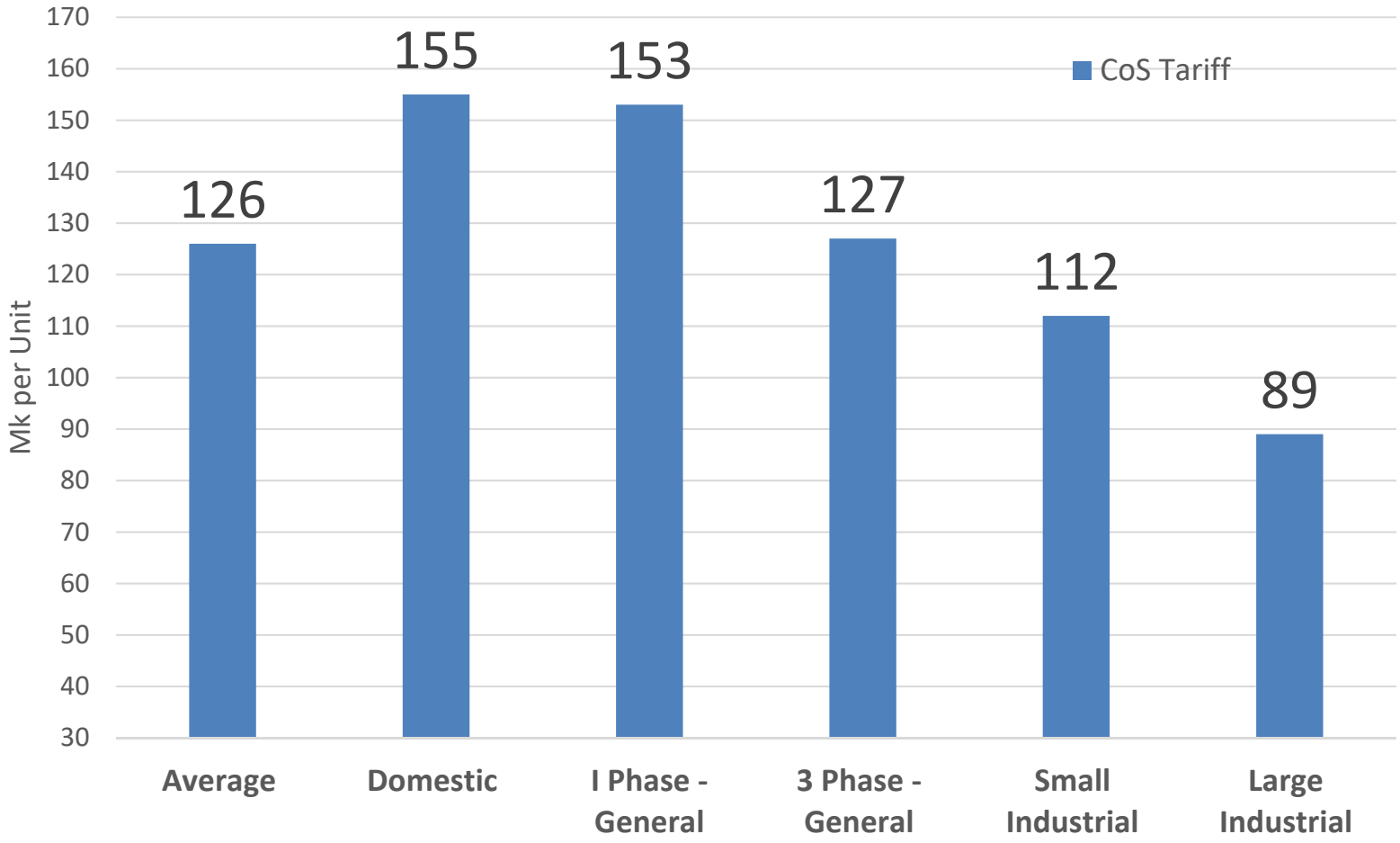
b) Revenue Requirement (RR) pricing system and tariff model

c) Power purchases treated as pass through cost to end user customers

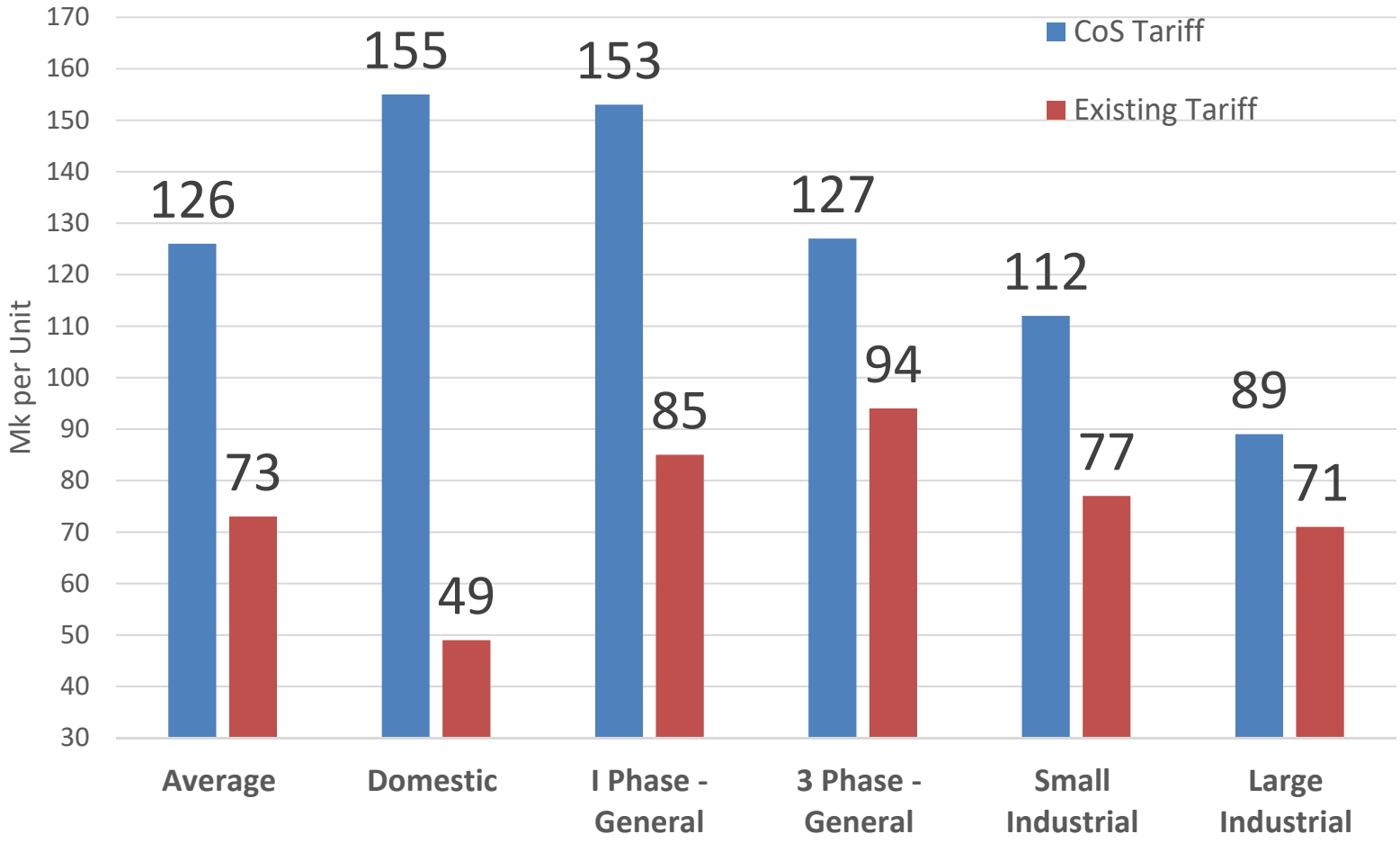
d) Sustainable Project financing

e) Tariff bounded by Cost of Service Study by ECA Consulting

AVERAGE COST OF SERVICE STUDY TARIFF



AVERAGE COST OF SERVICE STUDY TARIFF AGAINST CURRENT AVERAGE TARIFFS



Base Tariff Submissions to MERA

a) **Single Buyer** Base Tariff

b) **Transmission** System Licensee Base Tariff

c) **System and Market Operator** (SMO) Base Tariff

d) **Distribution** System Licensee Base Tariff

e) **Bulk Customer** Tariff Base Tariff

f) **Retail** Tariff Base Tariff

g) Retail Base Tariff Structure

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SINGLE BUYER LICENSEE BASE TARIFF

The **Single Buyer** (SB)Base Tariff

The SB is an important Division for the reformed power sector Energy Market

a) Develops long term power needs for the country

b) Develops Least Cost Investment plans in line with the IRP

c) Develops efficient and effective energy procurement plans for the country

d) Negotiates and Signs PPA with power sources

e) Makes timely settlements for market players

Planned Capacity Purchases (MW)

Generation Source	Bas Year	2018/19	2019/20	2020/21	2021/22	2022/2023
Egenco	348	414	414	414	414	414
AGGREKO Diesel	55	78	78	-	-	-
Mozambique-Malawi Cross Boarder - Mandim	1	1	10	10	10	7
Zambia-Malawi Cross Boarder	-	20	20	20	20	20
Solar PV Plants	-	40	116	116	116	116
Gebis Waste to Energy Plant	-	-	10	10	10	10
Ndiza - Ruo Mini Hydro	-	-	8	8	8	8
Coal Fired	-	-	-	43	258	258
Natural Gas Plant (Salima)	-	-	-	30	30	40
Bua Mbongozi Hydro	-	-	-	-	25	41
Mozambique-Malawi-Interconnector	-	-	-	-	50	50
Total Installed Capaity (MW)	**404**	**553**	**656**	**651**	**941**	**965**
Additional Cumulative MW		**149**	**252**	**247**	**537**	**560**

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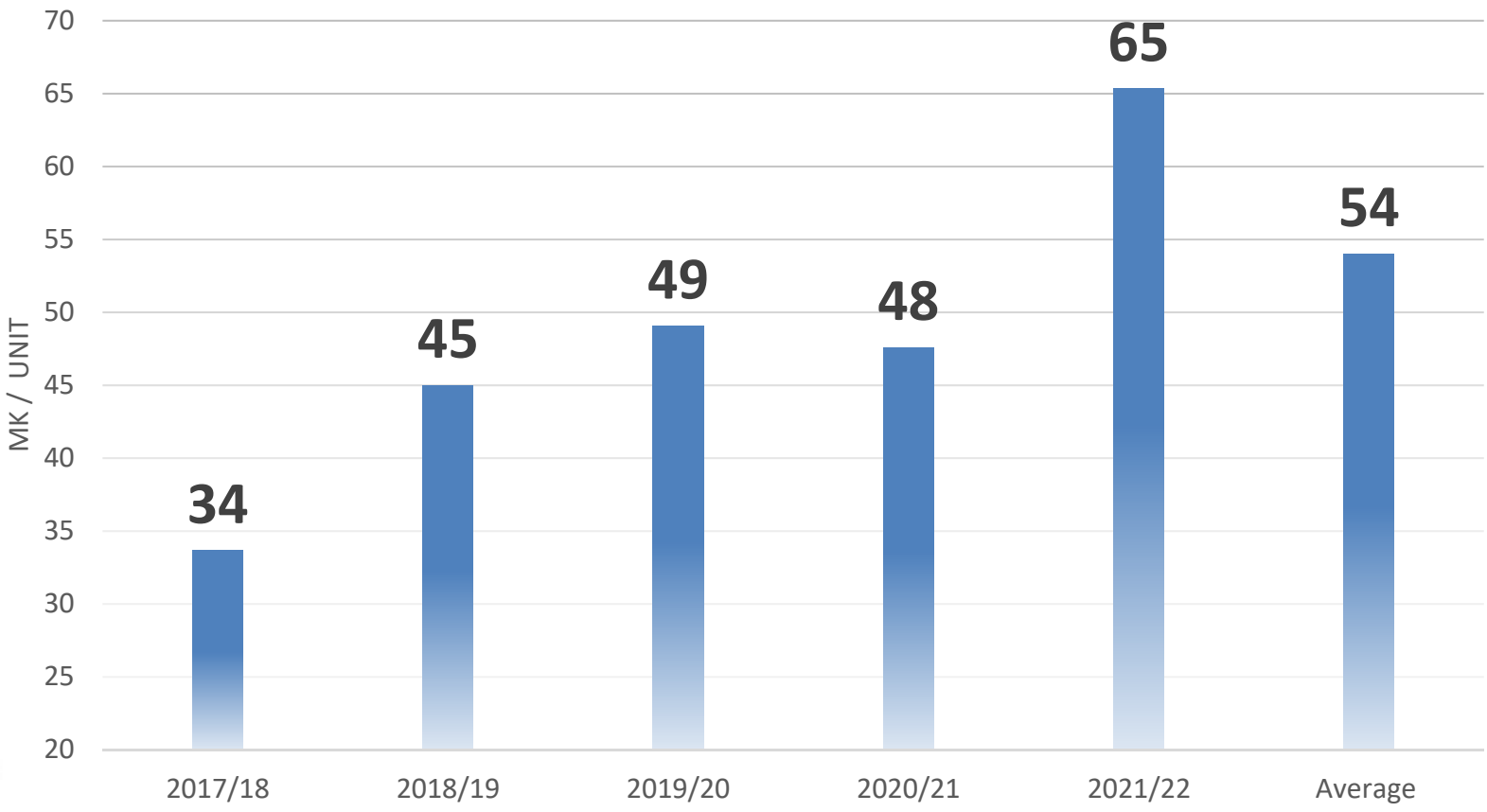
SB Planned purchase Costs(MK bn)

Electricity Purchase Cost	2018/19	2019/20	2020/21	2021/22	Total
Egenco	67	67	66	66	266
AGGREKO Diesel	33	33	-	-	67
Zambia-Malawi Cross Boarder	7	7	8	8	30
Solar	6	17	17	17	58
Mozambique-Malawi Cross Boarder - M	0	3	3	3	8
Ndiza	-	3	4	4	11
Gabiz	-	6	7	7	20
Coal fired	-	-	29	173	201
Gas	-	-	11	12	23
Mozambique-Malawi-Interconnector	-	-	-	26	26
Bua Mbongozi Hydro	-	-	-	8.00	8.00
Total	**113**	**137**	**145**	**324**	**719**

ESCOM must raise MK719 bn to settle purchase Costs of energy from generators with levies and provision for bad debts included

SB – Average Energy Purchase Price
(MK / KWh)



The SB Revenue Requirement Base Tariff

	Unit	*2018/19*	*2019/2020*	*2020/2021*	*2021/22*	*Total*
General Expenses	MK bn	5.25	6.11	6.41	12.72	30.49
Depreciation Cost	MK bn	0.003	0.003	0.003	0.003	0.011
Financing Cost (SB plus Head Office)	MK bn	4.52	5.47	5.78	12.90	28.67
Revenue Requirement	**MK bn**	**9.77**	**11.59**	**12.18**	**25.63**	**59.17**
Energy Billed to Customers	GWh	2,078.59	2,328.01	2,544.03	4,162.75	11,113.38
SB Revenue Requirement Tariff	MK /KWh	4.70	4.98	4.79	6.16	5.32

**The SB will have to borrow to finance the cost of setting up and operation of the SB ESCROW account for settlement of IPP purchase cost and other cost and obtaining bank guarantees . General expenses rising due to managing escrow account which is expensed.*

SYSTEM AND MARKET OPERATOR LICENSEE BASE TARIFF

SMO Revenue Requirement Base Tariff

REVENUE REQUIREMENT	2017/18	2018/19	2019/2020	2020/2021	Total
General Expenses	1,224,935	1,387,499	1,522,477	1,663,552	5,798,464
Depreciation cost on head office assets	160,965	154,526	148,088	141,649	605,228
Depreciation cost on SMO assets	94,478	156,168	210,803	265,606	727,055
Financing Charge	216,860	216,624	216,389	216,154	866,026
Taxation	53,955	53,896	53,838	53,779	215,469
Revenue Requirement	**1,751,193**	**1,968,714**	**2,151,594**	**2,340,741**	**8,212,242**
Energy entering distribution	2,406,121,578	2,684,546,529	2,916,146,913	4,757,428,833	12,764,243,852
Average Transmission tariff	**0.73**	**0.73**	**0.74**	**0.49**	**0.64**

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TRANSMISSION LICENSEE BASE TARIFF

Transmission Grant Funded Investments

- Under the MCC and World Bank Funding
  - New 400 kV transmission system
  - Upgrading of major transmission lines
  - Upgrading of major substation
- Transmission network
  - **Ready to transfer more than 3 times** the current capacity
  - Ready to support power produces by providing high way for power to major load centers
- The funding will sustain end user customers

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ESCOM Funded Transmission Investments

ESCOM plans to invest MK 157 billion during the base tariff period.

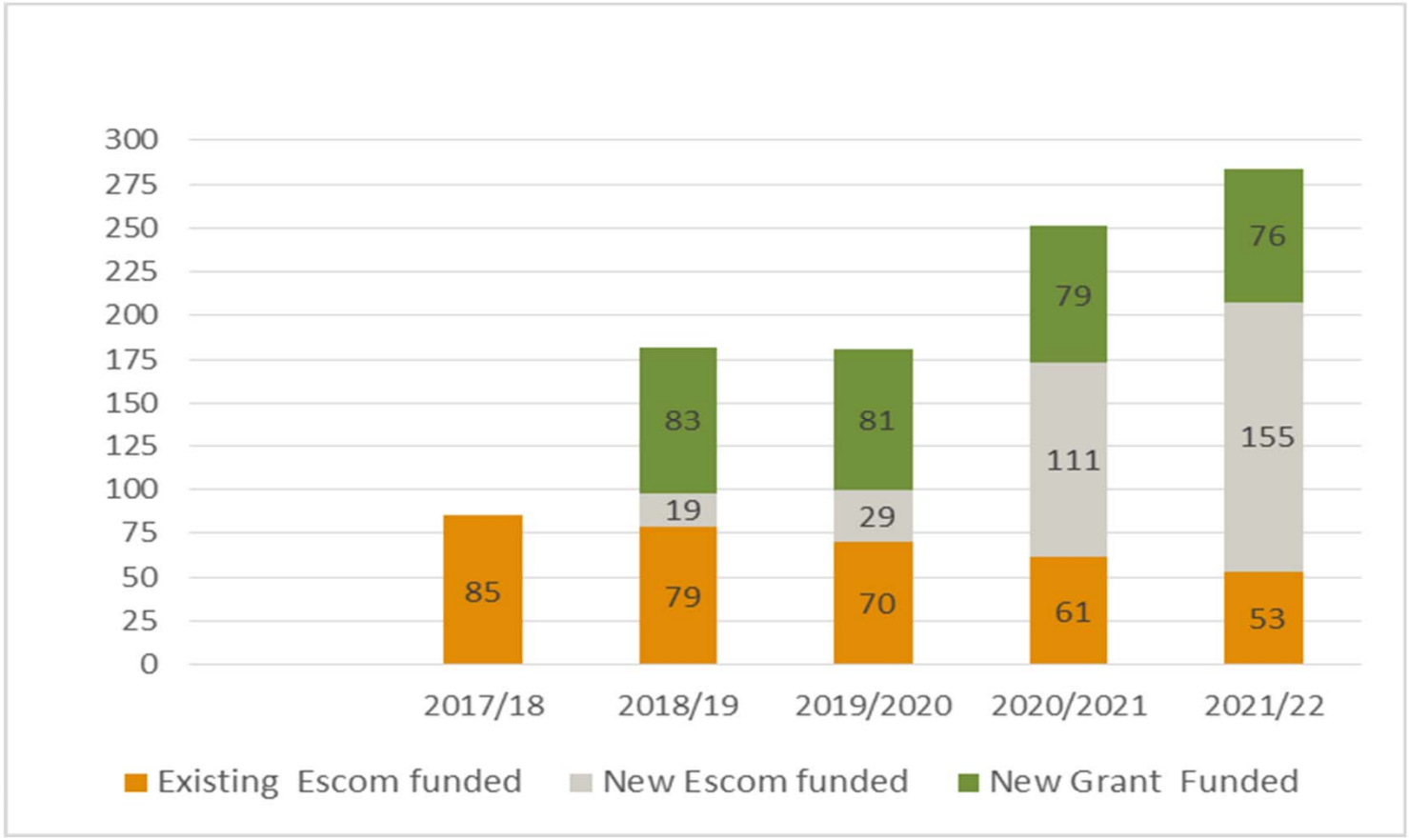
a) Upgrading of existing transmission lines from wooden to steel / concrete towers to minimize down time e.g. lakeshore power lines

b) Upgrading existing transmission substations to accommodate demand growth in water pumping , irrigation and processing e.g. in Salima

c) Commission new transmission lines and substations E.g Nsanama, Blantyre (Kameza) and Zomba to accommodate load growth

d) Construct new power lines for Integration with power produces / sources eg Malawi - Moz Interconnector and Solar IPPs.

Transmission Regulatory Asset Base (Mk bn)



Growth in 2020/2021 is due to interconnector , IPPs and new power lines . The Values of Assets will have doubled in year one due to Grant Funded Project

Transmission Revenue Requirement Base Tariff

	Units	2018/19	2019/2020	2020/2021	2021/22	Total
General Expenses	MK bn	7.84	8.90	9.71	10.61	37.07
Depreciation	MK bn	10.66	12.46	13.07	11.53	47.71
Financing cost	MK bn	6.03	6.08	10.29	12.30	34.71
Taxation	MK bn	1.24	1.25	2.12	2.53	7.14
Total Revenue Requiremen	**MK bn**	**25.77**	**28.69**	**35.19**	**36.97**	**126.63**
		-	-	-	-	-
Energy Sent out	**GWh**	**2,406.12**	**2,684.55**	**2,916.15**	**4,757.43**	**12,764.24**
Average Transmission tariff	MK /KWh	10.71	10.69	12.07	7.77	9.92
Average Tariff	*US Cents /KWh*	*1.46*	*1.45*	*1.64*	*1.06*	*1.35*

* The financing cost is on non grant funded asset only .

DISTRIBUTION LICENSEE BASE TARIFF

Escom Funded Distribution Investments

a) Migrate all small power users to split prepayment

b) Install Maximum Demand prepayment metering in government institutions.

c) Connect 360,000 customers

d) Construct power lines to evacuate power from small IPPs and power sources including cross boarder from Zambia.

e) Electrify new centers in major towns such as Lilongwe, Blantyre and Mzuzu

f) Implement Demand Side Management Projects

g) Reinforce network in Mzuzu and Lilongwe business center with underground network

h) Reinforce the system by introducing new feeders and substations

i) Commission a National Contact / Call Center

j) Install Distribution System Remote Control System in Lilongwe and Mzuzu

Projected Growth In Customer Base

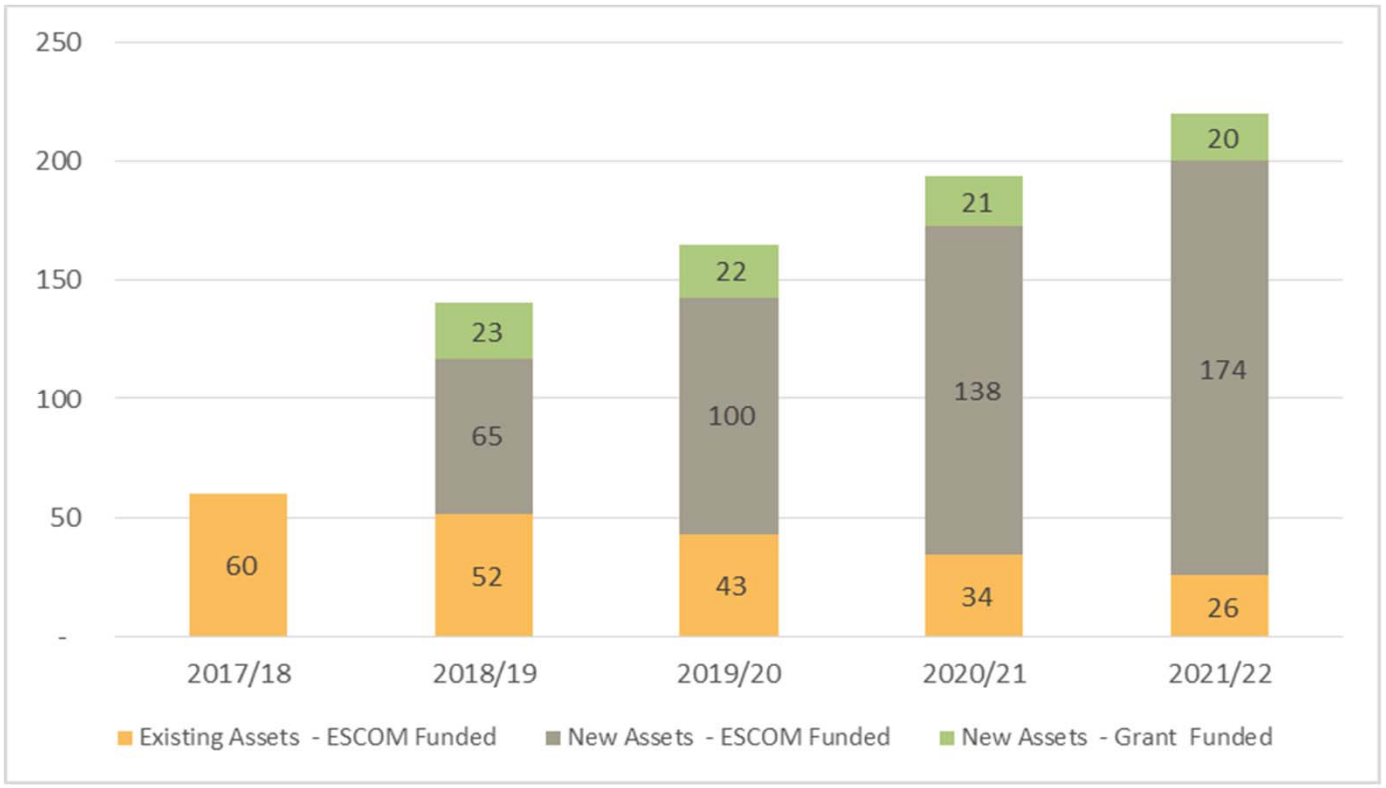
Financial Year	Units	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
Domestic Customers	No	374,000	459,020	541,975	627,000	713,890
General / Commercial Customers	No	64,200	70,000	77,000	82,000	85,000
Maximum Demand Customers	No	930	980	1,025	1,000	1,110
Customer Base	**No**	**440,000**	**530,000**	**620,000**	**710,000**	**800,000**
Additional Connections / Year	No		90,000	90,000	90,000	90,000

Access Rate planned to grow from the current **11%** to **19%** over the Base Tariff Period

Energy Flow and Sales

Energy Flows	Units	Base Year	2018/19	2019/20	2020/21	2021/22	Total
Energy Purchases	kWh	1,822,298,462	2,519,499,034	2,796,402,634	3,037,653,034	4,955,655,034	**13,309,209,737**
Transmission System Losses	%	4.700%	4.500%	4.000%	4.000%	4.000%	
Distribution System Losses	%	13.10%	13.00%	12.75%	12.25%	12.00%	
Total System Losses	%	**17.8%**	**17.5%**	**16.75%**	**16.25%**	**16%**	
Energy Billed to customers	kWh	1,480,672,800	2,078,586,703	2,328,005,193	2,544,034,416	4,162,750,229	**11,113,376,541**
System Losses	**%**	**17.8%**	**17.50%**	**16.75%**	**16.25%**	**16%**	

Projected Growth in Distribution Regulatory Asset Base (Mk bn)



Growth in regulatory asset base required to connect 360,000 new customers and provide quality of supply

Distribution Revenue Requirement Base Tariff

Revenue Requirement cost	Unit	2018/19	2019/2020	2020/2021	2021/22	Total
General Expenses	Mk bn	49.12	50.95	55.12	59.89	215.07
Depreciation Cost	Mk bn	12.32	14.14	15.81	17.40	59.67
Financing Charge	Mk bn	0.93	0.95	1.02	1.42	4.33
Taxation	Mk bn	0.19	0.20	0.21	0.29	0.89
Revenue Requirement	Mk bn	62.56	66.23	72.16	79.00	279.96
Energy Billed	GWh	2,078.59	2,328.01	2,544.03	4,162.75	11,113.38
Average tariff	**MK/KWh**	**30.10**	**28.45**	**28.37**	**18.98**	**25.19**
	US Cents /KWh	**4.10**	**3.87**	**3.86**	**2.58**	**3.43**

* General expenses includes projects that are expensed such as DSM and Accelerated access. The tariff reduces with time due to high sales

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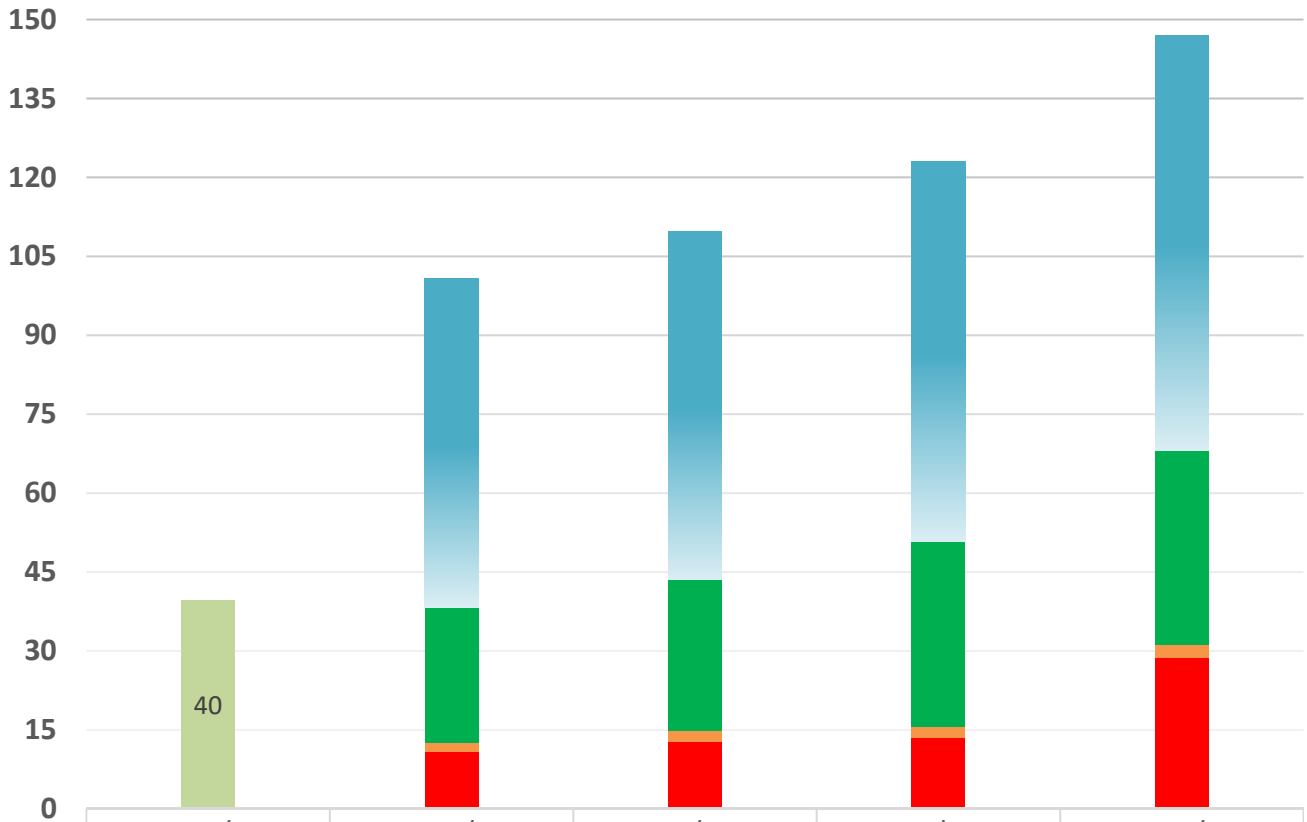
ESCOM REVENUE REQUIREMENT BUILD UP (Mk Billions)



	2017/18	2018/19	2019/2020	2020/2021	2021/22
Distribution Own Cost		63	66	72	79
Transmission Own Cost		26	29	35	37
SMO Own Cost		2	2	2	2
SB Own Cost		11	13	14	29
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BULK TARIFF REVENUE REQUIREMENT TARIFF

	Unit	2018/19	2019/2020	2020/21	2021/2022	Total
Purchased energy from power plants	MK bn	113	137	145	324	719
Transmission Own Cost	MK 'bn	26	29	35	37	127
SMO Own cost	MK bn	2	2	2	2	8
SB's own costs	MK bn	11	13	14	29	66
Total Bulk Cost	MK bn	152	181	195	392	920
Energy Billed to Customers	GWh	2,079	2,328	2,544	4,163	11,113
Bulk Tariff	MK /kWh	73.0	77.6	76.8	94.1	82.8

END USER BASE TARIFF
REVENUE REQUIREMENT

	Unit	2018/19	2019/2020	2020/2021	2021/22	Total
Purchase Cost	Mk bn	113.4	137.2	144.6	323.8	718.9
RR for all Functions	Mk bn	100.9	109.7	123.0	147.0	480.7
Levies	Mk bn	11.8	13.6	14.7	25.9	66.0
Bad Debt	Mk bn	6.8	7.8	8.5	14.9	38.0
Total RR	Mk bn	232.8	268.3	290.8	511.7	1,303.6
Energy Sales	GWh	2,078.6	2,328.0	2,544.0	4,162.8	11,113.4
Average Tariff	MK per KWh	112.02	115.25	114.29	122.92	117.30

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END USER BASE TARIFF
REVENUE REQUIREMENT

	Unit	2018/19	2019/2020	2020/2021	2021/22	Total
Purchase Cost	Mk bn	113.4	137.2	144.6	323.8	718.9
RR for all Functions	Mk bn	100.9	109.7	123.0	147.0	480.7
Levies	Mk bn	11.8	13.6	14.7	25.9	66.0
Bad Debt	Mk bn	6.8	7.8	8.5	14.9	38.0
Total RR	Mk bn	232.8	268.3	290.8	511.7	1,303.6
Energy Sales	GWh	2,078.6	2,328.0	2,544.0	4,162.8	11,113.4
Average Tariff	MK per KWh	112.02	115.25	114.29	122.92	117.30

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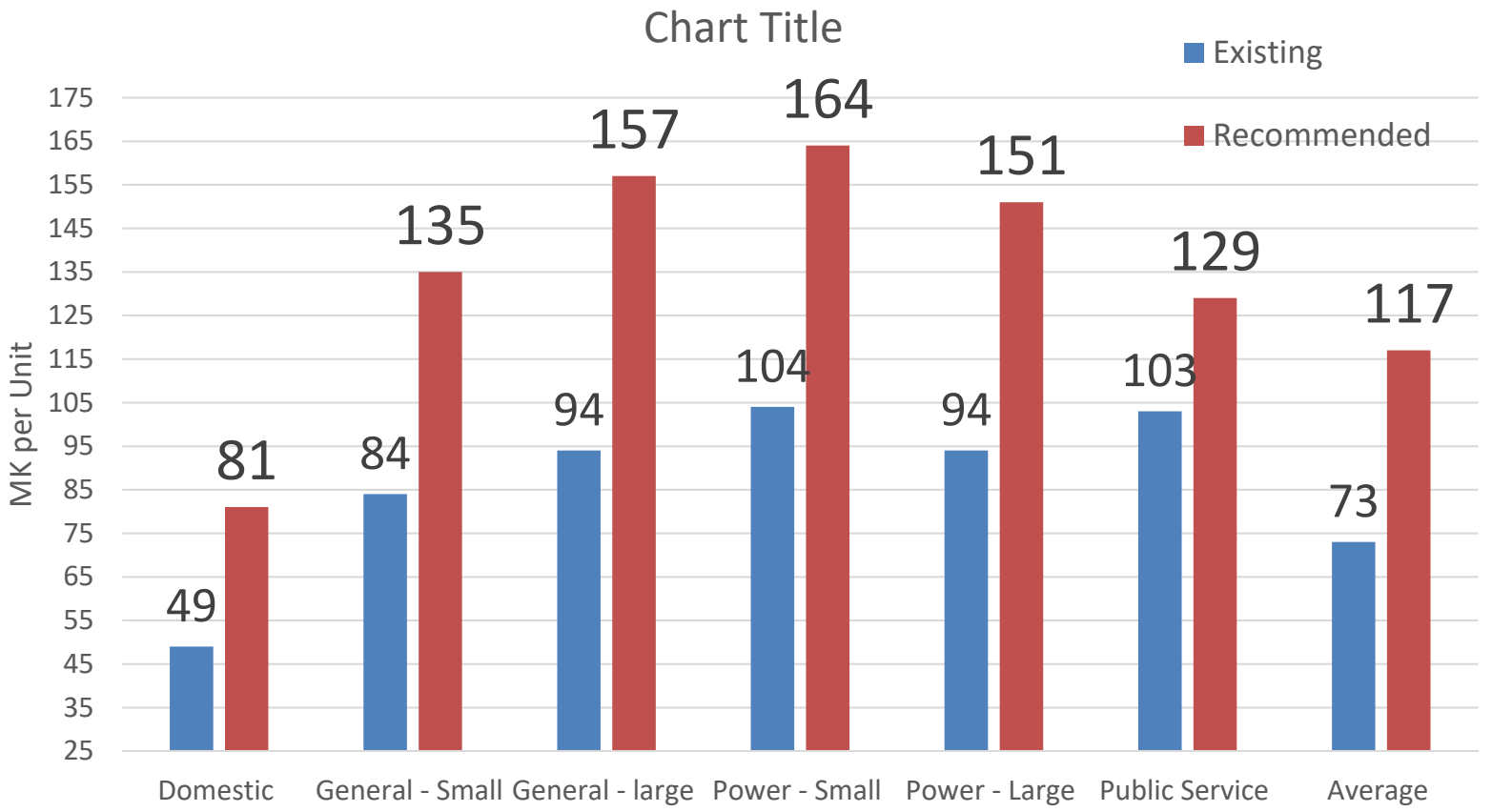
AVERAGE COST OF SERVICE TAIRIFF AGAINST RECOMMENDED AVERAGE TARIFFS

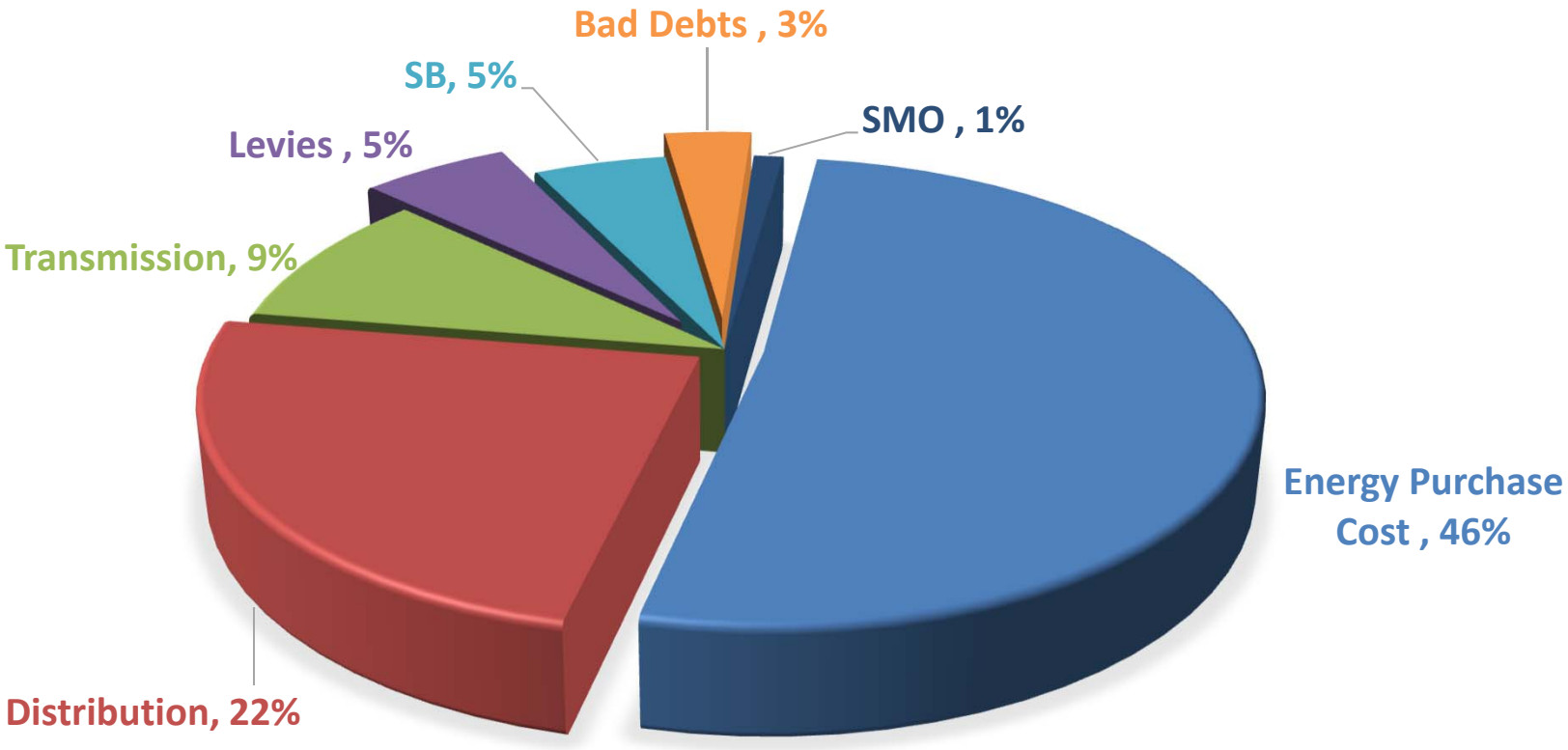


Proposed Average Tariff Increase

Tariff Category	Tariff in Mk / Unit		% Tariff Change
	Existing	Proposed	
Domestic	48.80	80.64	65%
General -Single Phase	84.40	135.00	60%
General -Three Phase	93.55	156.50	67%
Maximum Demand - Medium Voltage Supply	104.20	164.10	57%
Maximum Demand - Low Voltage Supply	94.20	151.05	60%
Public Service	103.00	129.00	25%
Average	73.23	117.30	60.17%

Domestic energy sales will account for ~ 50% of total sales from 30% and this will push the average price higher

End User Tariff Break Down



ESCOM'S Share of the end User Tariff is only 37% of the total (MK 43 per Unit)

Implementation

- Spread over the Tariff Window
- Initially covering operational and maintenance costs
- Capital investments funded through debt financing.
- Adjustments relating to new investments will only be activated after development and verified by MERA being ready for operation.
- Grant funded projects only impacting on depreciation and not used for calculation of return on assets.

Domestic Customers Expected Gains

- Cross subsidies from other tariff categories will continue
- Life line tariff for the vulnerable group introduced
  - Below 50 units charged at MK 50 per unit
  - Above 50 units to be charged at ~ MK 95 per unit

Industry Expected Gains

- Reduced subsidy contribution
- Removal of the fixed charge
- Reduced capacity charge to spread risk due to possibility of unavailability of power.
- Increased availability of power of production

Economy Expected Gains

- Economic growth in line with the MGDS III and the Strategic Development Goals.
- Business and employment opportunity through outsourcing of new construction and maintenance works
- Attraction of more investments in the electricity sector

Power Generators/Suppliers

- Assurance of timely payments on energy bought, through the Single Buyer.
- Assurance of the required financial stability of the off taker, ESCOM, important for the sustainability of the new electricity market.

Risks of Maintaining the Status Quo

- Current revenue streams cannot satisfy operational requirements due to impact of asset depreciation and requirement for cost of supply.
- Malawi will lose the opportunity to finalise power generation or implement supply procurements in the pipeline for the Regulatory Period.
- Current capacity shortfalls will worsen.
- New projects will not be implemented.
- New customers will not be connected.
- Economic development will be slowed down.

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The End

THANK YOU VERY MUCH FOR YOUR ATTENTION