

A FAIR AND EQUITABLE CALCULATION OF NETWORK CONTRIBUTION – OPE, OSHAKATI CASE STUDY

Revised 2019/03

OPE CCP GSFA

OSHAKATI PREMIER ELECTRIC



Oshakati Premier Electric



G.S. FAINSINGER & ASSOCIATES consulting engineers

GS Fainsinger & Associates Consulting Engineers • PO Box 2142 • 32 Bismarck Street • Windhoek
Namibia • Tel: +264 61 235 165 • Fax: +264 61 235 166 • E-mail: gsfa@gsfa.com.na

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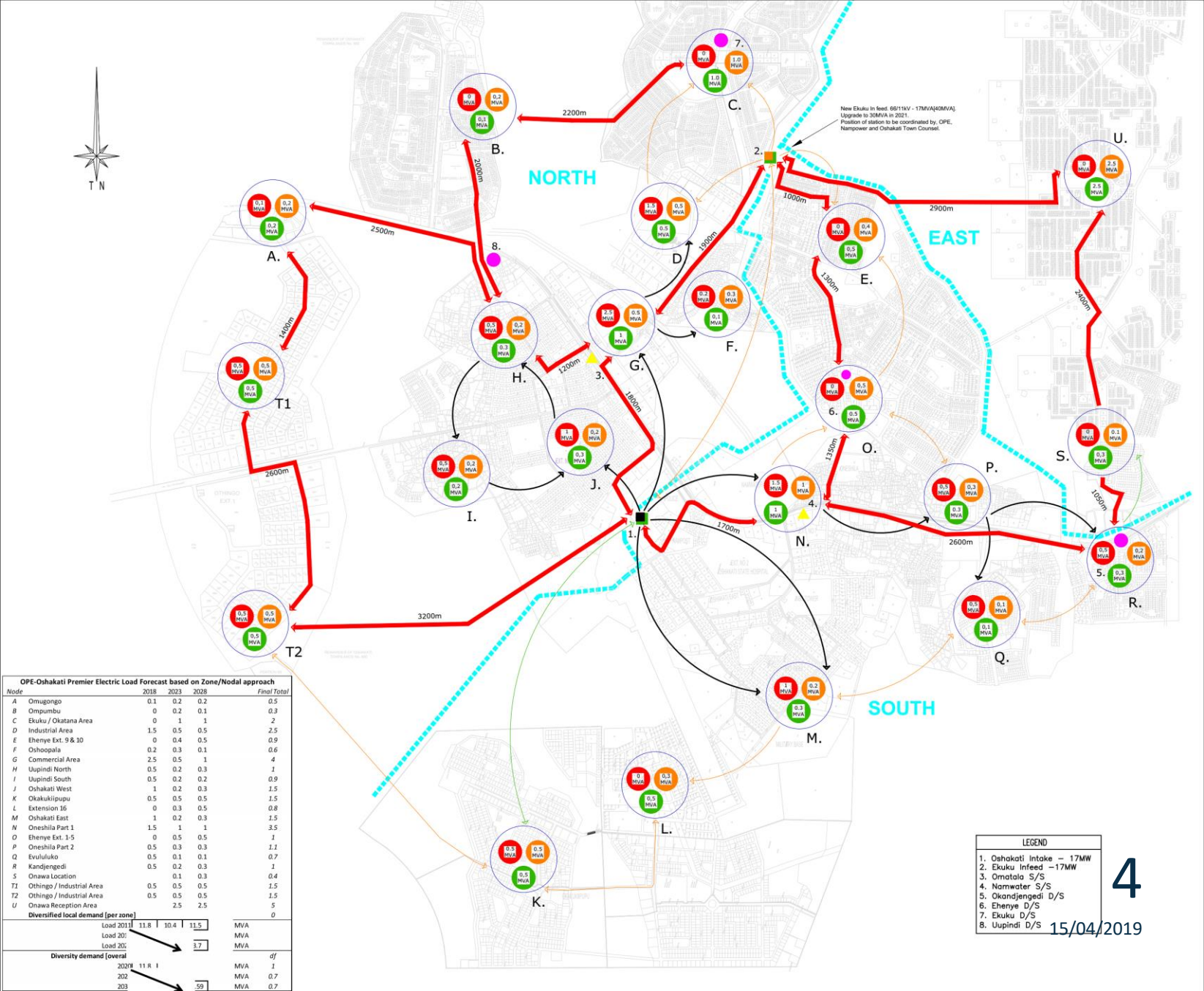
PRESENTATION OUTLINE

1. Project aim – to have a “A Fair and Equitable Calculation of Network Contribution – to present the Capital Contribution Policy”
2. Challenges driving the project
3. OPE network infrastructure and profile forecast and considerations and defining connection points
4. High level assessment of related policies applied in industry
5. Reflection of connection levels, impact and cost attributes
6. Process to assess the connection cost and connection categories
7. Approach to determine the CCP contribution charges at different levels in reference similar approaches in industry, addressing cost with / without DEEP [NamPower Bulk Upgrade Cost]
8. Present contribution charges and costs –
9. Discuss financial tools to manage the charges collected
10. Way forward discussion on implementation

OPE PROJECT SCOPE

- The aim of the OPE CCP (Oshakati Premier Electric *Connection and Distribution* Connection Charge Policy) is to provide a **simplified, fair, transparent and understandable guideline** – to charge and **recover costs for connections at different supply points and levels within the network**, so ensure the network infrastructure can be expanded, operated and maintained on a **sustainable basis**.
- As per National Connection Charge Policy [2014] paragraph 5. Connection Charge Policy, pg. 35, Principles of ***equality, efficiency, simplicity*** should prevail. The OPE policy aligns to this derivative and supplements thereto
- Challenges to be addressed are step-loads, large developments, load encroachment in build-up areas / existing suburbs
- Upstream shared equipment to be included
- Applicants / applications to obtain a look-up table like schedule of Connections Charges applicable

OPE NETWORK



- Transmission infeed point – NamPower OPE Metering Point / POS (Point of Supply)
- **Intake Station** – LOAD CENTERS where the Nampower supply distributes to ...
- **Primary Station** - PRIMARY DISTRIBUTION STATIONS where the Load Centers distribute to dedicated supply n-1 ...
- **Secondary station** – DISTRIBUTION STATIONS AND MINISUBS where the Primary stations distribute to, and configure ring (mainly) but also on spur feeders ...
- **Feeder connections** - Mainly on LV (Low Voltage) distributed from Minisubs and Distribution stations

INFRASTRUCTURE DEFINITIONS AND NODES

CURRENT TRENDS AND DEVELOPMENTS

- Spatial Load forecast for the OPE distribution area
- below S-Curve load pickup, saturated levels indicated in the table

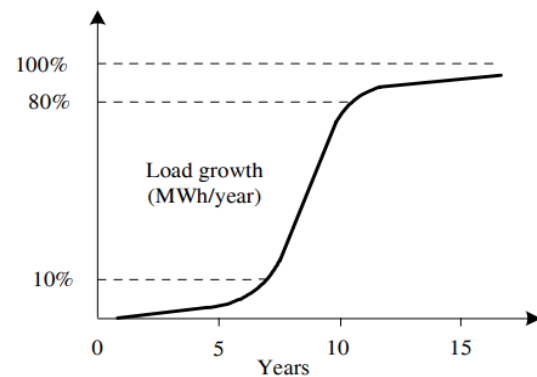


Fig. 1. Characteristic S-curve representing the growth of a small area

OPE-Oshakati Premier Electric Load Forecast based on Zone/Nodal approach						
Node		2018	2023	2028		Final Total
A	Omugongo	0.1	0.2	0.2		0.5
B	Ompumbu	0	0.2	0.1		0.3
C	Ekuku / Okatana Area	0	1	1		2
D	Industrial Area	1.5	0.5	0.5		2.5
E	Ehenye Ext. 9 & 10	0	0.4	0.5		0.9
F	Oshoopala	0.2	0.3	0.1		0.6
G	Commercial Area	2.5	0.5	1		4
H	Uupindi North	0.5	0.2	0.3		1
I	Uupindi South	0.5	0.2	0.2		0.9
J	Oshakati West	1	0.2	0.3		1.5
K	Okakukiipupu	0.5	0.5	0.5		1.5
L	Extension 16	0	0.3	0.5		0.8
M	Oshakati East	1	0.2	0.3		1.5
N	Oneshila Part 1	1.5	1	1		3.5
O	Ehenye Ext. 1-5	0	0.5	0.5		1
P	Oneshila Part 2	0.5	0.3	0.3		1.1
Q	Evululuko	0.5	0.1	0.1		0.7
R	Kandjengedi	0.5	0.2	0.3		1
S	Onawa Location		0.1	0.3		0.4
T1	Othingo Industrial and Okakukuupupu on the southern town	0.5	0.5	0.5		1.5
T2	Othingo Industrial and Okakukuupupu on the southern town	0.5	0.5	0.5		1.5
U	Onawa Reception Area		2.5	2.5		5
	Diversified local demand [per zone]					0
	Load 2011	11.8	10.4	11.5	MVA	
	Load 2016		22.2		MVA	
	Load 2020			33.7	MVA	
	Diversity demand [overall]					df
	2020	11.8			MVA	1
	2025		15.54		MVA	0.7
	2030			23.59	MVA	0.7

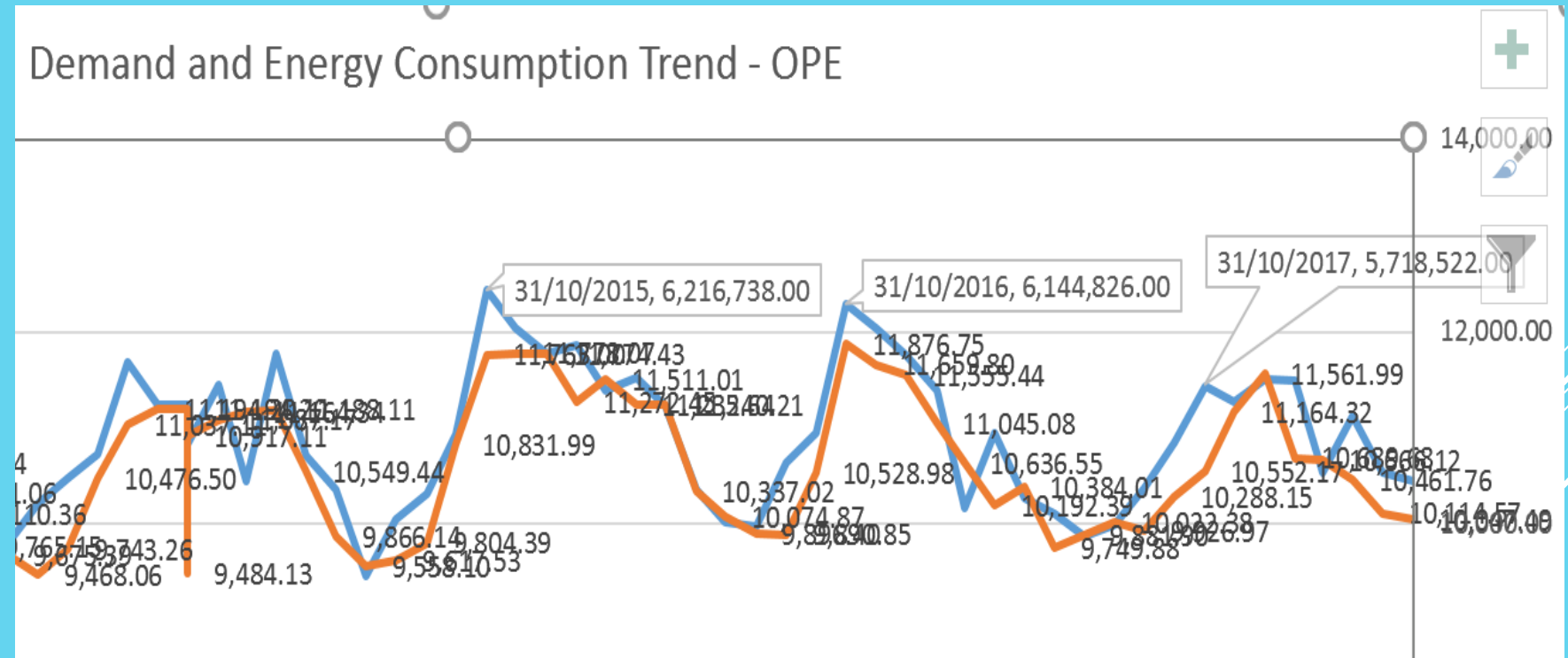
Note: Revised timeframe (slower growth)

Impact of RE's to be assessed in Demand Growth

15/04/2019

Load-Profile revision assessment - Goose curve Impact of PV EG RE.

- The energy sales (for the month of October 2017 on a year on year comparison almost by 10%, and by 4% YOY overall i.e. 67 GWhr to 64 GWhr. A significant reduction also on the Demand Profile YoY. – OPE's shaped daily profile reflects good compatibility to PV EGs.



OPE CURRENT TRENDS IN ENERGY AND DEMAND

CONNECTION COSTS AND NETWORK CONTRIBUTION – DISCUSSION APPROACH

- Discuss the Network Connection Policy with the ECB (Electricity Control Board) in line with their guideline on refunds and alike.
- Interaction with existing stakeholder to discuss / obtain information their methodology on Network Contributions.
- ErongoRED
- CENORED
- NORED
- City of Windhoek
- Review of information/policies available in South Africa (elsewhere)

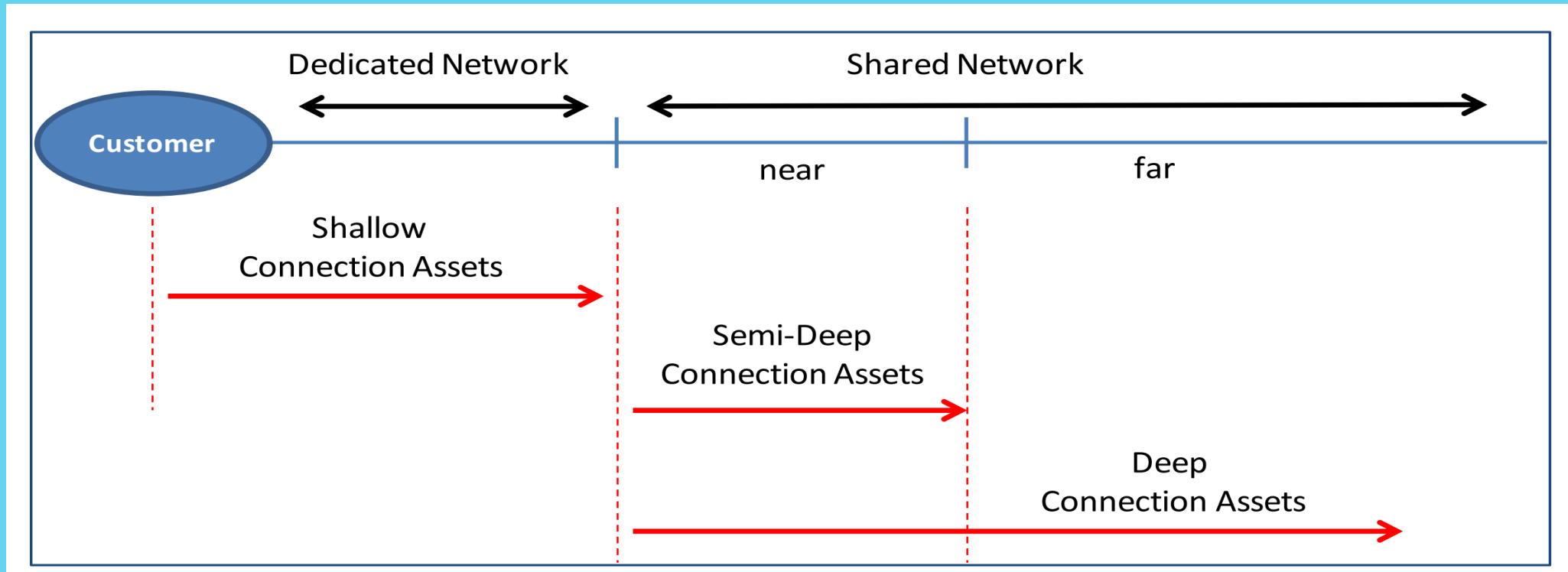
CONNECTION LEVELS

- **DEEP** connections- as per NCCP are 'far' assets, referred to in context as NamPower (Transmission Supply) costs incurred
- **SEMI-DEEP** are 'close' assets – which will benefit all clients and customers [downstream] – and are constructed or to be constructed assets in the OPE network
- **SHALLOW** connection charges – are to the benefit all dedicated clustered areas. Costs are the direct and dedicated for the MV and LV infrastructure required by the client / applicant and is the infrastructure required by the applicant to fulfil the development's or project's objective

NAMIBIAN CONNECTION CHARGE POLICY

NCCP CONNECTION LEVELS

SOURCE NCCP



COSTS

- a) Site acquisition and preparation costs not provided by the customer,
- b) Equipment costs,
- c) Interest during construction costs,
- d) Inflation of costs,
- e) Labour costs,
- f) Transport costs,
- g) Insurance during construction costs,
- h) Any cost of exchange rate cover,
- i) Cost impact due to exchange rate movements,
- j) Any relevant overhead costs,
- k) Costs for the preparation of quotes and cost estimates,
- l) Owner's development costs such as project management, engineering and overheads.
- m) Capital costs related to the provision of premium services (in excess of agreed national standards) quality of supply that is better than of agreed standards.

APPROACH TO ASSESS CONTRIBUTION ON ISOLATED LEVEL

- OPE indicated to ‘ further refine the various feeders in Oshakati as their size and capacity differs’ – CAPEX from current 11MVA to future 37MVA requires PV of N\$ 151 mio to increase the distribution to 34MVA in the system,
- An initial step was taken to calculate the high level contribution in three different zones N, E, S (North/East/South) – refer to spatial arrangement.

The overall cost for the Zone N, E, S (North/East/South) is as listed – for a connection

		N		S		E	
Feeder+	Cost-contribution per KVA						
Cable+							
SEMI DEEP		N\$	4,281.61	N\$	3,593.87	N\$	5,356.32

[8] 11kV Urban Station Switching - PRIMARY STATION	
N\$	4,856.06
INCL BULK NamPower Cost /KVA	
N\$	2,242.42
EXCLUDING BULK NAMPOWER COST/kVA	

The cost derived for the same contribution level is as calculated in the uniform approach []

CONNECTION CHARGE CATEGORIES

Types:

- Mass Housing Development – Step Loads $> 1000\text{kVA}$
- Block/Township Development – Step Loads $315\text{kVA} < \dots < 1000\text{ kVA}$
- Connections – Industrial / Commercial / Business $< 315\text{kVA}$
- Property Sub-division – Loads to be assessed
- Increased services that exceed the original/ initial design limits – loads to be assessed
- Additional connections within a developed area – this can be block developments within an area. Above apply to urban areas.

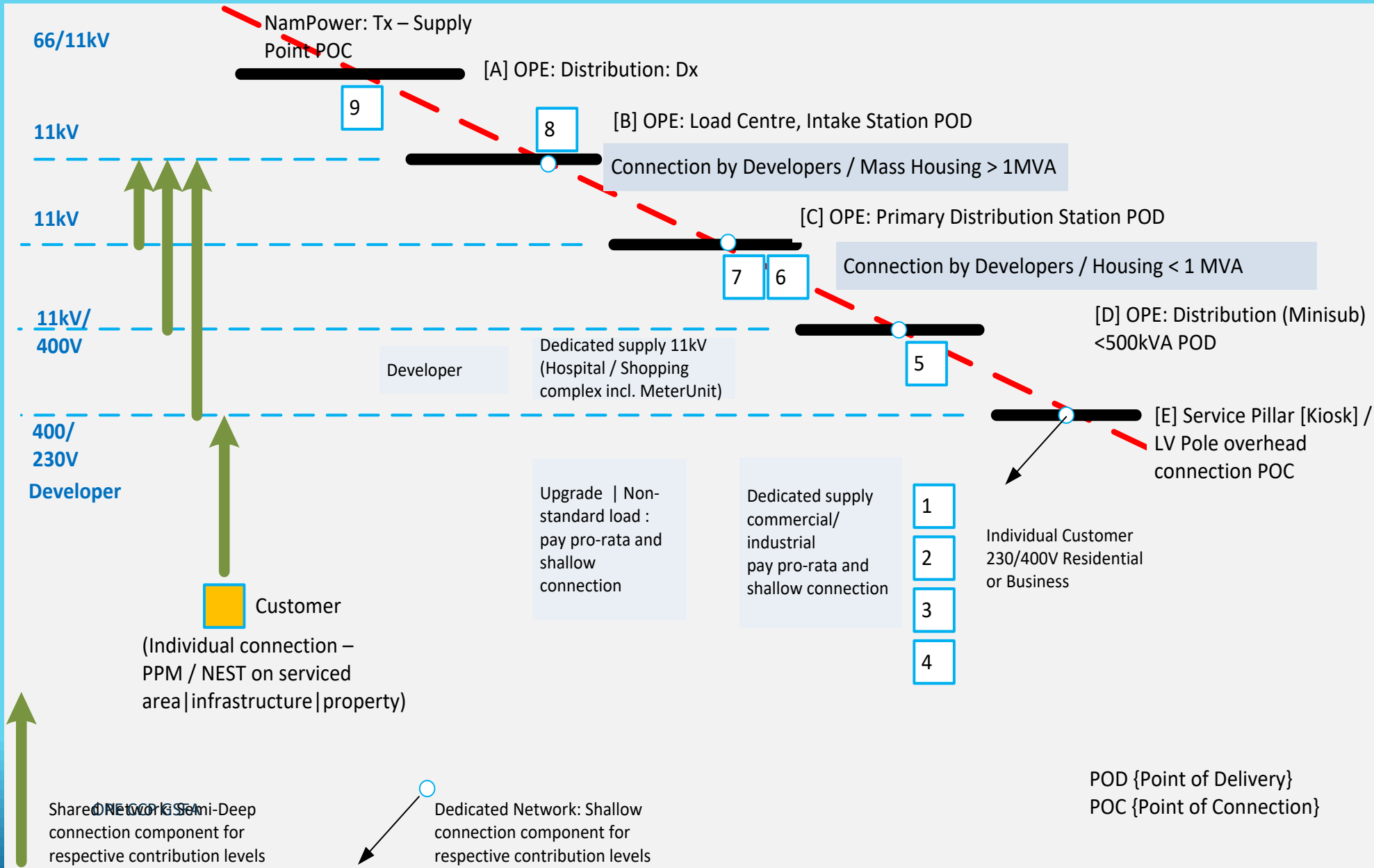
CONNECTION CHARGE CATEGORIES

Recommended Network Connection Charge **Groups** for OPE's Policy

Group			
1	[1] 230/400V Electrification ABC retic	NEST - Namibian Electricity Support Tariff - on serviced area <30m from POD	15A
2	[2] 230/400V Urban Cable retic	Conventional Residential Connection 60A Single phase - on serviced area <30m from POD	60A
3	[3] Connection : NEST 2.5kVA 15A	Conventional Business Connection 60A Single phase - on serviced area <30m from POD	60A
4	[4] Connection : PPM 1st / 2nd/3rd supply - 60A 4KVA	Conventional Business Connection 60A Three phase - on serviced area <30m from POD	3x60A
5	[5] 400V Urban at Minisub	Conventional Business Connection Three Phase, connection and LV board in station or Minisub, less than 3x500A [<315kVA]	<315kVA
6-7	[6 + 7] 11kV Urban Ring on Station	Connection < 1000kVA, install Minisub / in existing ring or connect from Primary Distribution Station	315-1000kVA
8	[8] 11kV Urban Station Switching - PRIMARY STATION	Connection > 1000kVA - feeder from Load Centre to connect to Primary Distribution station or dedicated Load required	315-1000kVA
9	[9] 11kV Urban - LOAD CENTRE	Connection > 1000kVA - feeder from Load Centre to connect to Primary Distribution station or dedicated Load required	>1000kVA

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NETWORK CAPITAL CONTRIBUTION GRAPH



- The Network Capital Contribution provides an overview where to connect to the different levels (PODs), and to understand the upstream contribution required.

- Note: Step-Load and New Customers, outside original Design Parameters

COST CALCULATION ASSET CONNECTION COSTS – OPE SPECIFIC

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EKUKU + OSHAKATI STATION											
	Description / Equipment	Equipment	POINT		Capacity Rating / kVA	Cost	Base date	ROE	Escalation	NPRV Amount	Cost N\$/kVA
1	66kV Transformer Bay	2 x 66 [132] kV bays + civil works	A	NamPower Ekuku	20000	N\$ 80,000,000.00	01/06/2018	5%	0%	N\$ 80,000,000.00	N\$ 4,000.00
2	66/11kV Transformers	2 x 20 MVA transformers + NECR + protection, wiring & control	A	NamPower Ekuku	0	N\$ 8,000,000.00	01/06/2018	5%	0%	N\$ 8,000,000.00	#DIV/0!
	available MD at 11MVA		A	NamPower OPE	17400	N\$ 20,000,000.00	01/06/2018	5%	0%	N\$ 20,000,000.00	N\$ 1,149.43
			A	NamPower OPE	0	N\$ 7,000,000.00	01/06/2018	5%	0%	N\$ 7,000,000.00	#DIV/0!
1	NamPower Intake	Stations - OPE and EKUKU		SUMMED TOTAL ABOVE LESS NMD	26400	N\$115,000,000.00		5%	0%	N\$115,000,000.00	N\$ 4,356.06
2	Sub Control & MV switch room LOAD CENTRE INTAKE	Civil works + earthing + battery chargers & batteries LOAD CENTRE	B	OPE	26400	N\$ 12,000,000.00	01/06/2018	5%	0%	N\$ -	N\$ 454.55
3	6 x 11kV switchgear; 1250A; 31kA CB + Incoming cable + Bus Section LOAD CENTRE INTAKE	2 incomers & 1 bus sectionalizers + protection,3+3 Feeders wiring & control LOAD CENTRE	B	OPE	26400	N\$ 12,000,000.00	01/06/2018	5%	0%	N\$ -	N\$ 454.55
4	11kV Main ring cable supply PRIMARY STATION	5 km [parallel] x 120mm² Cu PILC cable + Pilot cable + Excavation [double feeder/2.5km avg]	C	OPE	6000	N\$ 11,000,000.00	01/06/2018	5%	0%	N\$ 11,000,000.00	N\$ 1,833.33
5	11kV Switch Station PRIMARY STATION	Brick building with cliplock roof c/w aggregate and fence	C	OPE	6000	N\$ 1,000,000.00	01/06/2018	5%	0%	N\$ 1,000,000.00	N\$ 166.67
6	PRIMARY STATION : 11kV switchgear ; 800A; 31.5kA; Single Bus CB DISTRIBUTION STATION	8 CB + diff protection, protection, wiring & control + 1 bus sections	C	OPE	6000	N\$ 4,000,000.00	01/06/2018	5%	0%	N\$ 4,000,000.00	N\$ 666.67
7	11kV switchgear ; 630A; 31.5kA CB DISTRIBUTION STATION	2 CB + protection, wiring & control	D	OPE	6000	N\$ 5,000,000.00	01/06/2018	5%	0%	N\$ 5,000,000.00	N\$ 833.33
8	11kV Cable Ring	6 km x 185mm² Cu PILC cable	D	OPE	4000	N\$ 6,000,000.00	01/06/2018	5%	0%	N\$ 6,000,000.00	N\$ 1,500.00
9	11kV O/H Line	10 km Rabbit on HLPD wooden poles	D	OPE	2000	N\$ 2,000,000.00	01/06/2018	5%	0%	N\$ 2,000,000.00	N\$ 1,000.00
10	500kVA Miniature substation	Complete with plinth, earthing & commissioning	D	OPE	500	N\$ 400,000.00	01/06/2018	5%	0%	N\$ 400,000.00	N\$ 800.00
11	100kVA pole Transformer	Complete with fused links, earthing & commissioning	D	OPE	100	N\$ 180,000.00	01/06/2018	5%	0%	N\$ 180,000.00	N\$ 1,800.00
12	U/G LV Reticulation	LV Cables & kiosks	E	OPE	4	N\$ 10,000.00	01/06/2018	5%	0%	N\$ 10,000.00	N\$ 2,500.00
13	O/H LV ABC Reticulation	Poles, LV bundle conductors & pole DB's	E	OPE	2.5	N\$ 7,000.00	01/06/2018	5%	0%	N\$ 7,000.00	N\$ 2,800.00
14	Metering	PPM / Cable / Connection / CB	F	OPE	2.5	N\$ 2,072.00	01/06/2018	5%	0%	N\$ 2,072.00	N\$ 828.80

MATRIX - ELECTRICAL ENGINEERING COST CONTRIBUTION ALLOCATION

NOTE: A SCALING FACTOR BASED ON REFERENCE DOCUMENTS ALLOWS FOR THE DIVERSITY ALLOCATED ON DIFFERENT HIERARCHICAL LEVELS I.E. HIGH END UPSTREAM HIGH DIVERSITY – TO LOW END DOWNSTREAM NO DIVERSITY

Electrical Engineering Cost Contribution Allocation											
Description	Tariff	Tariff (N\$/kVA)		[1] 230/400V Electrification ABC retic	[2] 230/400V Urban Cable retic	[5] 400V Urban at Minisub	[6 + 7] 11kV Urban Ring on Station	[8] 11kV Urban Station Switching - PRIMARY STATION	[9] 11kV Urban - LOAD CENTRE	[3] Connection : NEST 2.5kVA 15A	[4] Connection : PPM 1st / 2nd/3rd supply - 60A 4KVA
1NAMPOWER 2 x Intake 37MVA	N\$	4,356.06	A	0.3	0.3	0.3	0.4	0.6	0.7	0.1	0.1
2Sub Control & MV switch room	N\$	454.55	B	0.3	0.4	0.3	0.4	1	1		
36 x 11kV switchgear; 1250A; 31kA CB + Incoming cable + Bus Section	N\$	454.55	B	0.3	0.3	0.3	0.4	1	1		
411kV Main ring cable supply	N\$	1,833.33	C		0.5	0.4	0.4	0.5			
511kV Switch Station	N\$	166.67	C		0.5	0.4	0.4	0.5			
PRIMARY STATION : 11kV switchgear ; 6800A; 31.5kA; Single Bus CB	N\$	666.67	C		0.5	0.4	0.4	0.5			
711kV switchgear ; 630A; 31.5kA CB	N\$	833.33	D		0.5	0.5	0.4				
811kV Cable Ring	N\$	1,500.00	D		0.5	0.5	0.5				
911kV O/H Line	N\$	1,000.00	D	0.3							
10500kVA Miniature substation	N\$	800.00	D		0.6	0.6					
11100kVA pole Transformer	N\$	1,800.00	D	0.5							
12U/G LV Reticulation	N\$	2,500.00	E		0.7						
OPE CCP GSFA 13O/H LV ABC Reticulation	N\$	2,800.00	E	1							
14Metering	N\$	828.80	F	1	1						

	[1] 230/400V Electrification ABC retic		[2] 230/400V Urban Cable retic		[5] 400V Urban at Minisub		[6 + 7] 11kV Urban Ring on Station		[8] 11kV Urban Station Switching - PRIMARY STATION		[9] 11kV Urban - LOAD CENTRE		[3] Connection : NEST 2.5kVA 15A		[4] Connection : PPM 1st / 2nd/3rd supply - 60A 4KVA	
INCL BULK NamPower Cost /KVA	N\$	6,408.35	N\$	7,183.80	N\$	4,292.88	N\$	4,256.06	N\$	4,856.06	N\$	3,958.33	N\$	1,264.41	N\$	1,264.41
NEST: PPM only															N\$	1,264.41
NEST: Connection incl. 15A / 2.5kVA <30m															N\$	3,161.02
Complete Serviced: Connection only 4kVA															N\$	5,057.62
Connection > 3 i.e. 4/5/6 ... 4kVA	N\$	25,633.38	N\$	28,735.20												
EXCLUDING BULK NAMPOWER COST/kVA	N\$	5,101.53	N\$	5,876.98	N\$	2,986.06	N\$	2,513.64	N\$	2,242.42	N\$	909.09	N\$	828.80	N\$	828.80
<i>[deemed to be subsidized by NEF/Gov.]</i>																
NEST: PPM only															N\$	828.80
NEST: Connection incl. 15A / 2.5kVA															N\$	2,072.00
Complete Serviced: Connection only															N\$	3,315.20
Connection > 3 i.e. 4/5/6 ... 4kVA	N\$	20,406.11	N\$	23,507.93												

COST ALLOCATION

COST ALLOCATION TO DIFFERENT LEVELS OF CONNECTION

OPE CONNECTION CHARGES

CONNECTION CHARGES BASED ON N\$/KVA AND EQUIVALENT UNIFIED CONNECTION COST FOR DIFFERENT CONNECTION APPLICATIONS

A OPE [cost excludes NamPower Upgrade]												* excluding DEEP / Bulk Upgrade Costs from NamPower
		A	Phase	kVA	Adjusted kVA	Rate/kVA *		PPM/RB/Connection	POS/POD [1]			
	NEST - Namibian Electricity Support Tariff - on serviced area <30m from POD	15	1	3.3	1.3	N\$	828.80	N\$ 1,077.44	Kiosk/pole box	POS	1.2.3.4	Fixed Load Application
	Conventional Residential Connection 60A Single phase - on serviced area <30m from POD	60	1	13.2	4	N\$	828.80	N\$ 3,315.20	Kiosk/pole box	POS	1.2.3.4	Fixed Load Application
	Conventional Business Connection 60A Single phase - on serviced area <30m from POD	60	1	13.2	9	N\$	828.80	N\$ 7,459.20	Kiosk/pole box	POS	1.2.3.4	Fixed Load Application
	Conventional Business Connection 60A Three phase - on serviced area <30m from POD	60	3	39.6	40	N\$	828.80	N\$ 33,152.00	Kiosk/pole box	POS	1.2.3.4	Fixed Load Application
	NEST - Namibian Electricity Support Tariff - un-serviced ABC	15	1	3.3	1.3	N\$	5,101.53	N\$ 6,631.99	to be serviced	POS	1.2.3.4	Fixed Load Application
	NEST - Namibian Electricity Support Tariff - un-serviced Underground	15	1	3.3	1.3	N\$	5,876.98	N\$ 7,640.08	to be serviced	POS	1.2.3.4	Fixed Load Application
	Conventional Residential Connection 60A Single phase - un-serviced area	60	1	13.2	3	N\$	5,876.98	N\$ 17,630.95	to be serviced	POS	1.2.3.4	Fixed Load Application
	Conventional Business Connection 60A Single phase - un-serviced area	60	1	13.2	9	N\$	5,876.98	N\$ 52,892.84	to be serviced	POS	1.2.3.4	Fixed Load Application
	Conventional Business Connection 60A Three phase - un-serviced area	60	3	39.6	20	N\$	5,876.98	N\$ 117,539.64	to be serviced	POS	1.2.3.4	Fixed Load Application
	Conventional Business Connection Three Phase, connection and LV board in station or Minisub, less than 3x500A [<315kVA]			<315KVA	175	N\$	2,986.06	N\$ 522,560.61	Minisub	POD	5	Variable Load Application
	Connection < 1000kVA, install Minisub / in existing ring or connect from Primary Distribution Station OPE CCP GSFA			>315... <1000	800	N\$	2,513.64	N\$ 2,010,909.09	install on 11kV Cable ring	POD	6	Variable Load Application
	Connection > 1000kVA - feeder from Load Centre to connect to Primary Distribution station or dedicated Load required			> 1000	1000	N\$	2,242.42	N\$ 2,242,424.24	Feeder Connection on Load-Centre	POD	7	Variable Load Application

B	Guideline Recommendation : Examples	OPE [cost excludes NamPower Upgrade]							All amounts VAT excl.			
B1.1	Mass-housing to develop 4000 Houses / new extension - 10MVA, work on 3kVA ADMD per connection.				12000	N\$ 2,242.42	N\$ 26,909,090.91	Feeder Connection on Load-Centre	POD	8		Variable Load Application / allow 3kVA ADMD per connection. Client to submit application in writing
B1.2	Responsibility: OPE to provide [minimum one / { in future n-1 preferably two connections}] dedicated feeder to applicant at Load centre											Client to pay amount, OPE to provide capacity and directive for MV integration and LV services
B2.1	Developer plans to develop an areas of 150 erven and requires two minisubs - each 315kVA				375	N\$ 2,513.64	N\$ 942,613.64	Feeder Connection on Load-Centre	POD	5		Variable Load Application / allow 2.5kVA ADMD per connection
B2.2	Responsibility: OPE to provide [minimum one] breaker compact at 11kV in a Primary Distribution Centre / or avail a -tie-in into an existing ring. The developer has to close the ring. Meter-connections from OPE are excluded and to be covered as above.											Client to pay amount, OPE to provide capacity and directive for MV integration and LV services
B3.1	Applicant requires 100kVA for a supermarket / shop / service station / office complex				100	N\$ 2,986.06	N\$ 298,606.06	Feeder Connection to LV board/Minisub	POD	5		Variable Load Application - as per application
B3.2	Responsibility: OPE to provide [minimum one] breaker compact LV at LV Board in station or in Minisub, the applicant to provide all LV infrastructure incl. metering. Meter-connections from OPE are excluded and to be covered as above.											Client to pay amount, OPE to provide capacity at LV busbar incl. Circuit breaker. OPE to install complete network required.
B4.1	Existing erf - desires to erect one or two additional flats on his/her erf. Apply 2x 2.5KVA ADMD. The NEST approach is not applicable in this case for application purposes, but may be considered for billing purposes.				5	N\$ 828.80	N\$ 4,144.00	Kiosk/pole box	POS	1.2.3.4		Fixed Load Application - based on 2 x 2.5kVA ADMD connections, rate per connection, from existing kiosk/pole box, phase balanced.
B4.2	Responsibility: OPE to install two meter [PPM] from existing supply point, and balance two phases.											
B5.1	Existing erf - desires to erect 5 (five additional flats on his premise)				7.5	N\$ 5,876.98	N\$ 44,077.36	Minisub LV busbar or kiosk				Connection additional (above 4.1) regarded under un-serviced area.
B5.2	Responsibility: OPE to install five meters [PPM] from existing supply point, and balance the phases. OPE to decide if an Upgrade of the Minisub is required or not, if a dedicated feeder or LV feeder upgrade is required or not, and to implement this accordingly.						N\$ 48,221.36		POS			This equates to a cost per connection of N\$ 14692.45 based on 2.5kVA per connection supplied.

EXAMPLES – OPE CONNECTION CHARGES PER CATEGORY

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BULK CHARGES

- Currently, a N\$.21/kWhr to be added to finance the CAPEX [deep connection such as NamPower Bulk Upgrades] *if no alternative would be available [such as NEF or NamPower funding]*. This excludes the security deposit generally required. *As alluded to, the NET metered PV EGs need to be included wrt. contributions, and hence costs could be levied to the evening period where everybody consumes electricity and/or to also reduce the NET metering charges paid, this to be determined by ORM/Tariff study.*
- These costs are distributed under NATURAL GROWTH and STEP LOADS/DEVELOPMENTS
- DEEP connections – unless otherwise recovered, are to be distributed fairly over all customers. Under variable costs, per charge per kWhr, this will equate that a load / CAPEX of 85 Mio N\$ at 10% would be recoverable over say 10 years

			Service cost / month	-N\$1,123,281.26	10yr/10% 85 Mio
Consumption Est.avg	kWhr	5,371,286.94	avg OPE kWhr/month	-N\$ 0.21	Cost/kWhr
	Avg MD	10000	avg OPE KVA/month	-N\$ 112.33	Cost/kVA to recover

FUNDS MANAGEMENT

- The proposed costs need to be managed in a ring-fenced [sinking fund] account and managed by a reputable low risk asset manager in the financial market, as not to expose the capital to undue risk.
- Costs for contributions if recovered under CAPITAL CONTRIBUTION may not be recovered once, and may not be over-recovered
- Until such time that enough funds have accumulated, OPE needs to insist to have payments for contributions made up of complete Upfront charges.
- Financial tools needs to be invented to accommodate CAPITAL CONTRIBUTION and DISBURSEMENTS for PROJECTS that are implemented [in future] over time.
- Option would be self-insurance funds with neutral VAT balance and Tax benefit

SWOT - OPE'S CONNECTION CHARGE POLICY

- Strength
 - OPE is a well established company managing and operating the electrical infrastructure to provide a basis for sound development and growth and off procedures and policies
- Opportunity
 - To establish OPE's Electrical Infrastructure Development Plan on a sound financial and technical outlook, with cost reflectivity and accountability – and a clear transparent Capital Contribution Policy
- Threat
 - Lack of acceptance on different levels
 - Risk to investor's appetite/desire to establish in Oshakati
 - Failure to timely implement the proposed CCP

CONCLUSION AND RECOMMENDATION

Based on the report for the OPE CCP, it is recommended to implement this in a structured form.

As these are not regulated by tariffs, the following action required –

- Apply to the ECB (Electricity Control Board) for planned upgrades and to request a tariff of 21c/kWhr be recovered for Bulk Upgraded, unless such amount can be sourced from the NEF or alternative from NamPower's connection.
- Set up an OPE Capital Contribution Network Fund, where all funds are accumulated as contributed under the CCP.
- Arrange loan facilities with banks to implement capital projects for natural growth [but not for step-loads] where development is required to further the town, but no funds are available. Developers and Step-load applications will provide both the connection charge and possibly project surety for single entities as per connection agreement.
- Ensure up-front payments are made in parallel with projects where step-loads are envisaged. The design caters for a S-curve load take up, and hence time is available to prepare the fund and to set up structures to finance the developments from contributions received.
- Implement upgrades – as required to accommodate growth.
- Charge Connection Charges as per policy – and as summarized in the report.

REFERENCES

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- NRS 069 - Distribution Tariff Code - Version 5.1 – 2007.
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