

A. NUA Data Handbook

Data for the Nauru electric power system is provided in this handbook for generation and distribution. Data that was missing or assumed is noted accordingly with red highlights.

A.1 Generation

There is one central power station for the NUA electric power system on the island of Nauru. Six of Eight generating units owned by NUA were under repair or decommissioned. Only two of the units owned by NUA were available for service. Ruston units 1 and 4 were available for service at the time of KEMA's visit but are subject to reliability problems.

Data items for the NUA diesel generating units are given in Table 1 below.

Table 1. NUA Diesel Generators

Unit No.	Make	Voltage (kV)	Base Rating (KVA)	PMax (KW)	Speed (rpm)	Year In Service	Status*
1	Ruston	3.3	2,500	1,900	750	1989	1
2	Paxman	3.3	2,000	1,600	1,500	2003	0
3	Caterpillar	3.3	1,600	1,250	1,500	2002	0
4	Ruston	3.3	2,000	1,600	750	1977	1
5	Ruston	3.3	2,000	1,600	750	1976	0
6	Ruston	3.3	2,000	1,600	750	1977	0
7	Paxman	3.3	2,000	1,600	1,500	2003	0
8	Caterpillar	3.3	1,600	1,250	1,500	2002	0
HS-1	Cummins	6.6	1,500	1,200	1,500	2003	1
HS-2	Cummins	6.6	1,500	1,200	1,500	2002	1
HS-3	Cummins	6.6	1,500	1,200	1,500	2003	0
HS-4	Cummins	6.6	1,500	1,200	1,500	2005	0
	TOTALS**		7,500	5,900			

Notes:

* Status of generating unit: 1=Available for service, 0=Unavailable for service.

** Totals reflect only the capacity of those units that were available for service at the time of KEMA's visit.

A.2 Distribution System Data

Data items related to the distribution system for the island of Nauru are given in the tables that follow. These tables provide data for the following categories of equipment:

- Power Transformers
- Circuit Breakers

Table 2. Power Transformer Data

No.	From Bus	Bus No.	To Bus	Bus No.	KVA	Nominal Voltage (kV)		Impedance p.u.*		Year	Status**
						Primary	Secondary	Resistance	Reactance		
1	NAURU POWER STATION	3B	SOUTH	S	2500	3.3	11.0	0.0199	0.0563	1977	1
2	NAURU POWER STATION	3A	NORTH	N	2500	3.3	11.0	0.0196	0.0555	1977	1
3	NAURU POWER STATION	3A	EAST	E	2500	3.3	11.0	0.0196	0.0555	1974	1
4	NAURU POWER STATION	C7	NAURU POWER STATION	3B	3600	6.6	3.3	0.0234	0.0663	2001	1

Notes:

* Per unit impedance is on the transformer KVA base

** Status of transformer: 1= On-line, 2=Off-line

Table 3. Circuit Breaker Data

Ref. No.	From Bus	Bus No.	To Bus	Bus No.	Continuous Rating (amps)	Interrupting Rating (amps)	Voltage (kV)	Year In Service	Status**
1	NAURU POWER STATION	EAST	EAST FEEDER TRANSFORMER	3A	Not given	Not given	11.0		1
2	NAURU POWER STATION	EAST	EAST FEEDER	E-1	Not given	Not given	11.0		1
3 (BT)	NAURU POWER STATION	EAST	NAURU POWER STATION	SOUTH	Not given	Not given	11.0		1
4 (BT)	NAURU POWER STATION	SOUTH	NAURU POWER STATION	EAST	Not given	Not given	11.0		1
5	NAURU POWER STATION	SOUTH	SOUTH FEEDER TRANSFORMER	3B	Not given	Not given	11.0		1
6	NAURU POWER STATION	SOUTH	SOUTH FEEDER	S-352	Not given	Not given	11.0		1
7 (BT)	NAURU POWER STATION	SOUTH	NAURU POWER STATION	NORTH	Not given	Not given	11.0		1
8 (BT)	NAURU POWER STATION	NORTH	NAURU POWER STATION	SOUTH	Not given	Not given	11.0		1
9	NAURU POWER STATION	NORTH	NORTH FEEDER	N-1	Not given	Not given	11.0		1
10	NAURU POWER STATION	NORTH	NORTH FEEDER TRANSFORMER	3A	Not given	Not given	11.0		1
11	NAURU POWER STATION	3B	WWC PLANT	-	Not given	Not given	3.3		1
12	NAURU POWER STATION	3B	LV SERVICE NO.2	-	Not given	Not given	3.3		1
13	NAURU POWER STATION	3B	SOUTH FEEDER TRANSFORMER	SOUTH	Not given	Not given	3.3		1
14	NAURU POWER STATION	3B	LOCATION	-	Not given	Not given	3.3		1
15	NAURU POWER STATION	3B	NO.1 SHORE CONVEYOR	-	Not given	Not given	3.3		1
16	NAURU POWER STATION	3B	FIELDS UNIT	-	Not given	Not given	3.3		1

Appendices

Ref. No.	From Bus	Bus No.	To Bus	Bus No.	Continuous Rating (amps)	Interrupting Rating (amps)	Voltage (kV)	Year In Service	Status**
17	NAURU POWER STATION	3B	NO.2 CANTILEVER	-	Not given	Not given	3.3		1
18 (BT)	NAURU POWER STATION	3B	NAURU POWER STATION	3A	Not given	Not given	3.3		1
19	NAURU POWER STATION	3A	EAST FEEDER TRANSFORMER	EAST	Not given	Not given	3.3		1
20	NAURU POWER STATION	3A	NO.2 SHORE LINE	-	Not given	Not given	3.3		1
21	NAURU POWER STATION	3A	N.L.G.C. FREEZER	-	Not given	Not given	3.3		1
22	NAURU POWER STATION	3A	DOMESTIC	-	Not given	Not given	3.3		1
23	NAURU POWER STATION	3A	NORTH FEEDER TRANSFORMER	NORTH	Not given	Not given	3.3		1
24	NAURU POWER STATION	3A	LV SERVICE NO.1	-	Not given	Not given	3.3		1
25	NAURU POWER STATION	3A	LV SERVICE NO.3	-	Not given	Not given	3.3		1

A.3 Distribution System Data

Distribution system equipment data for the NUA system is listed in this section, including data for distribution feeders and distribution transformers.

Data items for the NUA system are given in the tables on the following pages.

Table 4. Distribution Feeders

Feeder	Substation	Total feeder Length (km)	Connected KVA
NORTH	NAURU PP	11.71	1,600
SOUTH	NAURU PP	11.31	2,400
EAST	NAURU PP	6.76	2,550
	Totals	29.78	6,550

Table 5. Distribution Feeder Data

Record No.	From	To	Circuit / Sec No.	Conductor Type	Configuration	Length (meters)	Rating (AMPs)	KVA Rating
1	SOUTH BUS	NORTH BUS	BT-1	95 mm ² CU XLPE	PVC CONDUIT	5		
2	NORTH BUS	EAST BUS	BT-2	95 mm ² CU XLPE	PVC CONDUIT	5		
3	SOUTH BUS	BUS S-352	S-1	95 mm ² AL XLPE	PVC CONDUIT	10		
4	NORTH BUS	BUS N1	N-1	95 mm ² AL XLPE	PVC CONDUIT	10		
5	EAST BUS	BUS E1	E-1	95 mm ² AL XLPE	PVC CONDUIT	10		
6	BUS 3A	BUS-2	C-3	95 mm ² AL XLPE	CABLE TRAY	5		
7	BUS C-2	BUS C-7	C-2	95 mm ² AL XLPE	CABLE TRAY	5		
8	BUS C-1	BUS C-7	C-1	95 mm ² AL XLPE	CABLE TRAY	5		
9	BUS N-1	BUS N-25	N-2	1/7 HDC	OVERHEAD	1,200		
10	BUS N-25	BUS N-27	N-3	1/7 HDC	OVERHEAD	100		
11	BUS N-27	BUS N-33	N-4	1/7 HDC	OVERHEAD	300		
12	BUS N-33	BUS N-54	N-5	1/7 HDC	OVERHEAD	1,050		
13	BUS N-54	BUS N-67	N-6	1/7 HDC	OVERHEAD	650		
14	BUS N-67	BUS N-77	N-7	1/7 HDC	OVERHEAD	500		
15	BUS N-77	BUS N-91	N-8	1/7 HDC	OVERHEAD	700		
16	BUS N-91	BUS N-106	N-9	1/7 HDC	OVERHEAD	750		
17	BUS N-106	BUS N-136	N-10	1/7 HDC	OVERHEAD	1,500		
18	BUS N-136	BUS N-171	N-11	1/7 HDC	OVERHEAD	1,750		
19	BUS N-171	BUS N-199	N-12	1/7 HDC	OVERHEAD	1,400		
20	BUS N-199	BUS 235	N-13	1/7 HDC	OVERHEAD	1800		
				NORTH FEEDER	TOTAL	11,710		
21	BUS S-352	BUS S-351	S-2	1/7 HDC	OVERHEAD	50		
22	BUS S-351	BUS S-347	S-3	1/7 HDC	OVERHEAD	200		

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Record No.	From	To	Circuit / Sec No.	Conductor Type	Configuration	Length (meters)	Rating (AMPs)	KVA Rating
23	BUS S-347	BUS S-343	S-4	1/7 HDC	OVERHEAD	200		
24	BUS S-343	BUS S-331	S-5	1/7 HDC	OVERHEAD	600		
25	BUS S-331	BUS S-331_A	S-6	1/7 HDC	OVERHEAD	100		
26	BUS S-331	BUS S-330	S-7	1/7 HDC	OVERHEAD	50		
27	BUS S-330	BUS S-355	S-8	1/7 HDC	OVERHEAD	1250		
28	BUS S-330	BUS S-319	S-9	1/7 HDC	OVERHEAD	550		
29	BUS S-319	BUS S-303	S-10	1/7 HDC	OVERHEAD	800		
30	BUS S-303	BUS S-293	S-11	1/7 HDC	OVERHEAD	500		
31	BUS S-293	BUS S-24	S-12	1/7 HDC	OVERHEAD	400		
32	BUS S-293	BUS S-277	S-13	35 mm ² CU XLPE	PVC CONDUIT	800		
33	BUS S-277	BUS S-271	S-14	35 mm ² CU XLPE	PVC CONDUIT	250		
34	BUS S-271	BUS S-265	S-15	35 mm ² CU XLPE	PVC CONDUIT	250		
35	BUS S-265	BUS S-260	S-16	1/7 HDC	OVERHEAD	250		
36	BUS S-260	BUS S-254	S-17	1/7 HDC	OVERHEAD	300		
37	BUS S-8	BUS S-260	S-18	1/7 HDC	OVERHEAD	400		
38	BUS S-8	BUS S-24	S-19	1/7 HDC	OVERHEAD	800		
39	BUS S-254	BUS S-248	S-21	1/7 HDC	OVERHEAD	300		
40	BUS S-248	BUS S-242_A	S-22	1/7 HDC	OVERHEAD	300		
41	BUS S-242_A	BUS S-235	S-23	35 mm ² CU XLPE	PVC CONDUIT	350		
42	BUS S-15	BUS S-248	S-24	1/7 HDC	OVERHEAD	500		
43	BUS S-303	BUS S-24	S-25	1/7 HDC	OVERHEAD	600		
44	BUS S-254	BUS S-15	S-26	1/7 HDC	OVERHEAD	250		
45	BUS S-370	BUS S-15	S-27	1/7 HDC	OVERHEAD	750		
46	BUS S-265	BUS S-370	S-28	1/7 HDC	OVERHEAD	500		

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Record No.	From	To	Circuit / Sec No.	Conductor Type	Configuration	Length (meters)	Rating (AMPs)	KVA Rating
				SOUTH FEEDER	TOTAL	11,310		
47	EAST	BUS E-1	E-1	95 mm ² CU XLPE	PVC CONDUIT	10		
48	BUS E-1	BUS E-2	E-2	35 mm ² CU XLPE	PVC CONDUIT	1000		
49	BUS E-2	BUS E-3	E-3	35 mm ² CU XLPE	PVC CONDUIT	1000		
50	BUS E-3	BUS E-4	E-4	35 mm ² CU XLPE	PVC CONDUIT	1000		
51	BUS E-4	BUS E-5	E-5	35 mm ² CU XLPE	PVC CONDUIT	1000		
52	BUS E-5	BUS E-6	E-6	35 mm ² CU XLPE	PVC CONDUIT	100		
53	BUS E-5	BUS S-319	E-7	35 mm ² CU XLPE	PVC CONDUIT	200		
54	BUS E-6	BUS E-7	E-8	35 mm ² CU XLPE	PVC CONDUIT	100		
55	BUS E-6	BUS E-8	E-9	35 mm ² CU XLPE	PVC CONDUIT	200		
56	BUS E-8	BUS E-24	E-10	35 mm ² CU XLPE	PVC CONDUIT	850		
57	BUS E-24	MINEN HOTEL	E-11	35 mm ² CU XLPE	PVC CONDUIT	1000		
58	BUS 235	MINEN HOTEL	E-12	35 mm ² CU XLPE	PVC CONDUIT	300		
				EAST FEEDER	TOTAL	6,760		

Table 6. Three-phase Distribution Transformers

NO.	LOCATION	FEEDER	KVA	BUS NO.	Nominal Voltage (kV)		Total
					Primary	Secondary	
DT N-25	NAURU HOSPITAL	NORTH	100	N-25			100
DT N-27	DENIGOMODU	NORTH	300	N-27	11.0	0.415	300
DT N-33	NIBOK	NORTH	150	N-33	11.0	0.415	150
DT N-54	UABOE	NORTH	300	N-54	11.0	0.415	300
DT N-67	BAITI	NORTH	150	N-67	11.0	0.415	150
DT N-77	MISSION	NORTH	150	N-77	11.0	0.415	150
DT N-91	EWA	NORTH	150	N-91	11.0	0.415	150
DT N-106	ANETAN	NORTH	150	N-106	11.0	0.415	150
DT N-136	ANABAR	NORTH	50	N-136	11.0	0.415	50
DT N-171	IJUW	NORTH	50	N-171	11.0	0.415	50
DT N-199	ANIBARE	NORTH	50	N-199	11.0	0.415	50
Total No: 11	NORTH FEEDER	TOTAL	1,600				1,600
DT S-351	PILLAR NO.2	SOUTH	250	S-351	11.0	0.415	250
DT S-347	PILLAR NO.3	SOUTH	250	S-347	11.0	0.415	250
DT S-343	UNKNOWN	SOUTH	150	S-343	11.0	0.415	150
DT S-331_A	TANK FARM	SOUTH	150	S-331_A	11.0	0.415	150
DT S-355	BUADA	SOUTH	150	S-355	11.0	0.415	150
DT S-303	YAREN EAST	SOUTH	150	S-303	11.0	0.415	150
DT S-24	YAREN	SOUTH	150	S-24	11.0	0.415	150
DT S-8	MENENG	SOUTH	150	S-8	11.0	0.415	150
DT S-277	UNKNOWN	SOUTH	150	S-277	11.0	0.415	150
DT S-271	GOV RADIO	SOUTH	400	S-271	11.0	0.415	400
DT S-370	GOV SOUTH	SOUTH	150	S-370	11.0	0.415	150



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DT S-248	TEACHERS GULLY	SOUTH	150	S-248	11.0	0.415	150
DT S-242	HANSEN	SOUTH	150	S-242	11.0	0.415	150
Total No: 13	SOUTH FEEDER	TOTAL	2,400				2,400
DT E-2	AIWO WEST	EAST	200	E-2	11.0	0.415	200
DT E-3	CIVIC CENTER	EAST	750	E-3	11.0	0.415	750
DT E-4	BOE EAST	EAST	200	E-4	11.0	0.415	200
DT E-5	GOV WORKSHOP	EAST	250	E-5	11.0	0.415	250
DT E-6	AIRPORT	EAST	300	E-6	11.0	0.415	300
DT E-8	GOVT OFFICES	EAST	300	E-8	11.0	0.415	300
DT E-24	FRESH CENTER	EAST	150	E-24	11.0	0.415	150
DT E-25	MINEN HOTEL	EAST	400	E-25	11.0	0.415	400
Total No: 8	EAST FEEDER	TOTAL	2,550				2,550
Total: 32	NUA System Totals		6,550				6,550

