

Suriname Electricity Sector Plan

Expansion Plan

May 2025



The Expansion Plan provides a 20-year roadmap, contingent on immediate crisis response and thermal fleet rehabilitation measures

Suriname's Expansion Plan ensures a reliable and sustainable electricity sector for 2025–2029, with a 20-year strategic outlook to 2044 with a 5-year action plan

Short, medium, and long-term roadmap

Key Elements for the success of the Expansion Plan:

- Immediate plan to face energy crisis
- Plan to rehabilitate EBS's thermal fleet in EPAR to achieve expected availability

2025-2026

Immediate plan to face energy crisis



Expansion Plan for ENIC and Rural Districts (Albina, Apoera, Coronie, Moengo, Wageningen, and Pokigron)



The Expansion Plan considers different energy options and models uncertainties



Options:

Option/Technology	Initial Year
Solar PV	2025-2026
Wind Turbines	2027-2028
Battery Energy Storage System	2025
Afobaka Expansion	2033
Reciprocating Internal Combustion Engines (RICE)	2025
Combustion Turbines	2032
Convert RICE Units to Burn Natural Gas	2029

Uncertainties:

- **Electricity demand:** We forecasted electricity demand for all systems
- **Fuel prices:** We forecasted prices for diesel, HFO, and natural gas



Hydrological inflows: We modeled stochastic inflows capturing seasonality, inflow correlations, and droughts

For 2025-2044, EPAR's expansion plan adds 1,301MW of new capacity, with US\$1.4 billion needed for generation and transmission



For 2025-2029, EPAR's expansion plan adds 254MW of new capacity, with US\$313 million needed for generation and transmission



254MW of new capacity by 2029:

- Solar: 195MW
- Reciprocating Internal Combustion Engine (RICE): 56MW
- Battery Storage: 3MW

US\$ million	2025	2026	2027	2028	2029	Total
Generation	15.8	56.3	113.0	56.3	42.3	283.7
Transmission	9.9	8.5	4.9	3.5	2.5	29.2

US\$425 million of investment is needed in the National Grid over next 5 years

Values in US\$ million	2025	2026	2027	2028	2029	Total
EPAR						
Generation	15.80	56.30	112.95	56.30	42.30	283.65
Transmission	9.86	8.52	4.94	3.45	2.47	29.24
Distribution	16.82	17.55	18.32	19.11	19.94	91.74
Sub-total	42.48	82.37	136.21	78.86	64.71	404.63
ENIC						
Generation	-	6.82	5.41	-	5.41	17.64
Distribution	2.53	0.03	0.03	0.03	0.03	2.65
Sub-total	2.53	6.85	5.44	0.03	5.44	20.29
Rural Districts						
Distribution	0.05	0.05	0.05	0.05	0.06	0.25
Sub-total	0.05	0.05	0.05	0.05	0.06	0.25
Total	45.06	89.27	141.7	78.94	70.21	425.17





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Appendix slides



Levelized cost of electricity comparison

Technology	Capacity (MW)	Fuel	Fuel (US\$/MWh)	Non-Fuel O&M (US\$/MWh)	Fuel+Non- Fuel O&M (US\$/MWh)	Capital (US\$/MWh)	Total (US\$/MWh)
Combined Cicle	33.2	Natural Gas (High)	103.81	6.68	110.49	22.67	133.16
Combined Cicle	33.2	LNG	183.6	6.68	190.28	22.67	212.95
Hydro (Tapajai)	335	-	0	8.37	8.37	125.56	133.93
RICE (HFO)	17	HFO (High)	236.45	12.96	249.41	29.11	278.52
RICE	17	Natural Gas (High)	113.76	12.96	126.72	29.11	155.83
RICE	17	LNG	201.6	12.96	214.56	29.11	243.67
Solar PV (1164)	15	-	0	9.51	9.51	91.64	101.15
Solar PV (1321)	15	_	0	9.51	9.51	104	113.51
Solar PV (2000)	15	-	0	9.51	9.51	157.46	166.97
Solar PV (3420)	15	_	0	9.51	9.51	269.26	278.77
Combined Cicle	33.2	Natural Gas (Low)	40.73	6.68	47.41	22.67	70.08
RICE (HFO)	17	HFO (Low)	123.2	12.96	136.16	29.11	165.27
RICE	17	Natural Gas (Low)	44.64	12.96	57.6	29.11	86.71
Biomass	2.5	Rice Husk	39	14.11	53.11	81.51	134.62



CapEx and OpEx for emergency plan

Cost Component	2025 (US\$ million)	2026 (US\$ million)
Capacity (MW)	55	25
Duration (months)	12	6
Capacity Factor	90.0%	90.0%
Energy Produced (MWh)	427,680	97,200
O&M (\$/MWh)	15	15
Lease	\$12.60	\$4.50
Mobilization/Demobilization	\$6.00	\$6.00
Fuel	\$42.44	\$9.63
Non-Fuel O&M	\$6.42	\$1.46
Total Estimated Cost	\$67.45	\$21.58
Levelized Cost (\$/MWh)	\$157.71	\$222.05
Lease (\$ million/day)	\$0.04	\$0.03
Specific Fuel Consumption (g/kWh)	210	210
Fuel Consumption (tons/day)	205	93
Fuel Price (\$/ton)	575	575

Cost Component (US\$ million)	2025	2026
CapEx	\$9.30	\$19.80
ОрЕх	\$24.43	\$35.51
Total	\$33.73	\$55.31



Rehabilitation CapEx of RICE units – DPP1

Genset #	Туре	Rehabilitation Project	t Lead time	Туре	Estimated budget (US\$)
Unit 16	MAN B&W 18V 32/40	Replace existing cooling radiators	8-12 months	Expected increase in capacity in dry season by approx. 0.5MW	\$285,000
		Upgrade safety and control system	10-14 months	Increase reliability and availability	\$210,000
Unit 17	MAN B&W 18V 32/40	Replace existing cooling radiators	8-12 months	Expected increase in capacity in dry season by approx. 0.5MW	\$285,000
Unit 18	MAN B&W 18V 32/40	Replace existing cooling radiators	8-12 months	Expected increase in capacity in dry season by approx. 0.5MW	\$285,000
Unit 19	MAN B&W 18V 32/40	Upgrade safety and control system	10-14 months	Increase reliability and availability	\$210,000
Unit 20	MAN B&W 18V 32/40	Replace existing cooling radiators	8-12 months	Expected increase in capacity in dry season by approx. 0.5 MW	\$180,000
		Upgrade safety and control system	10-14 months	Increase reliability and availability	\$210,000
	Common system	Upgrade balance of plant control and monitoring system	6-8 months	Increase reliability and availability	\$800,000
				Subtotal DPP1:	\$2,465,000



Rehabilitation CapEx of RICE units – DPP2

ADVISORS

Genset #	Ту	pe Rehabilitation Project	Lead time	Туре	Estimated budget (US\$)
DE01	MAN 48/60 TS	Replace existing cooling radiator packs (LT)	12-14 months	Expected increase in capacity in dry season by approx. 1MW	\$985,000
		Upgrade safety and control system (electronic spares/operating panels)	8-12 months	Increase reliability and availability	\$120,000
DE02	MAN 48/60 TS	Replace existing cooling radiator packs (LT)	12-14 months	Expected increase in capacity in dry season by approx. 1MW	\$985,000
		Upgrade safety and control system (electronic spares/operating panels)	8-12 months	Increase reliability and availability	\$120,000
DE03	MAN 48/60 TS	Replace existing cooling radiator packs (LT)	12-14 months	Expected increase in capacity in dry season by approx. 1MW	\$985,000
		Upgrade safety and control system (Speed governor and operating panels)	8-12 months	Increase reliability and availability	\$245,000
DE04	MAN 48/60 TS	Replace existing cooling radiator packs (LT)	12-14 months	Expected increase in capacity in dry season by approx. 1MW	\$985,000
		Upgrade safety and control system (speed governor and operating panels)	8-12 months	Increase reliability and availability	\$245,000
	Common system	Upgrade balance of plant control and monitoring system (DCS/cyber security)	10-14 months	Increase reliability and availability	\$750,000
	Common system	Upgrade balance of plant steam system (exhaust boile overhaul/replace)	12-18 months r	Increase reliability and availability	\$1,500,000
				Sub-Total DPP2:	\$6,920,000
				Total DPP1 + DPP2:	\$9,385,000