



Time Series Load Flow Report

ETAP Version
24.0.1N

Project:

Location:

Contract:

Engineer:

Project Filename: Ofosu Replication

Date: 28-09-2026

Serial Number: DNDLYIR

Output Filename: C:\ETAP 2401\Ofosu Replication\OFOSU_BASE_ISLAND_PV_BEES.TU1S

System Frequency: 50

Unit System: Metric

Standard: IEC

Revision: Base

Configuration: ISLAND_PV_BE

Study Case: TDLF

Time Series Load Flow Analysis

Study case ID				TDLF			
Maximum No. of Iteration				99	Quasi-Dynamic Model	No	
Precision of Solution				1E-04	Millisecond Time Scale	No	
Halt on Non-Convergence				No	Interpolate Profile	No	
Halt on Equipment Overload				No			
AC & DC Simutaneous Solution				Yes			
Loading Category				Design			
Generation Category				Design			
DC Loading Category				Design			
Charger Loading				Constant Current			
Load Diversity Factor				None			
Constant P	Constant Z	Constant I	Generic				
100	100	100	100				

Simulation Start time	2026-01-27	00:00:00		
Simulation End time	2026-01-27	23:59:59		
Simulation Step	1.00	Hour		
Total Simulation Counts	24			
External Data	Yes	Battery Model	Rated Voc & R	
Wind External Data	PQ Data	SOC Category		

PV External Data	Irradiance	SOC (%)	
Annual Load Growth Factor	0.00%		
Apply Neg. Tolerance and Min. Temp. Correction	No		
Tolerance	Apply Adjustments	Tolerance	Percentage
Transformer Impedance	Yes	Individual	0.00
Reactor Impedance	Yes	Individual	0.00
Overload Heater Resistance	No	Individual	0.00
Transmission Line Length	No	Individual	0.00
Cable Length	No	Individual	0.00
Temperature Correction	Apply Adjustments	Correction	Degree C
Transmission Line Resistance	Yes	Individual	75
Cable Resistance	Yes	Individual	75
Number of Calculation	24		
Non-Converged Calculation	0		
Unsolved by Halting Calculation	0		
Calculation Start Time	2026-09-28	20:32:42	
Calculation End Time	2026-09-28	20:32:43	

Time Series Load Flow Alerts

		Device Information		Rating		% Operating Values			Alerts	
Date	Time	Device ID	Device Type	Value	Unit	A	B	C	Condition	Type
1/27/26	00:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	00:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	00:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	00:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	01:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	01:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	01:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	01:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	02:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	02:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	02:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	02:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	03:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	03:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	03:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	03:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	04:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	04:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	04:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	04:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	20:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	20:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	20:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	20:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	21:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical

1/27/26	21:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	21:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	21:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	22:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	22:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	22:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	22:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	23:00:00	Cable6	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	23:00:00	Cable7	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	23:00:00	Cable17	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical
1/27/26	23:00:00	Cable20	Cable	0.0147	Amp	0.6	10.4	9.8	LIUR (Pos. Seq.)	Critical

Device Profile

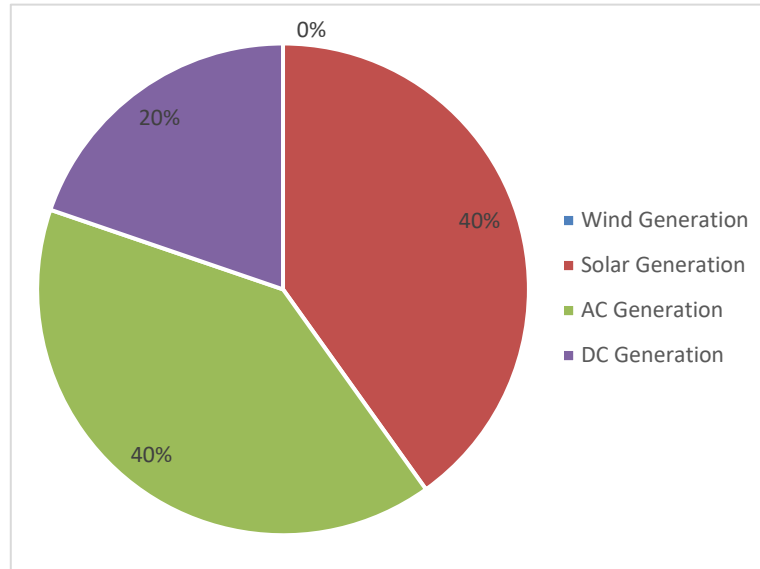
Device ID	Type	Data Type	Type 1	Type 2	Energize Date	Out of Service Date	Growth Curve	Data Gap options
PVA1	PV Array	External	Irradiance		01/01/26	01-01-2046		Use Last Value
PVA2	PV Array	External	Irradiance		01/27/26	27-01-2026		Use Last Value
PVA3	PV Array	External	Irradiance		01/27/26	27-01-2026		Use Last Value
PVA4	PV Array	External	Irradiance		01/27/26	27-01-2026		Use Last Value
PVA5	PV Array	External	Irradiance		01/27/26	27-01-2026		Use Last Value
PVA6	PV Array	External	Irradiance		01/27/26	27-01-2026		Use Last Value
PVA7	PV Array	External	Irradiance		01/27/26	27-01-2026		Use Last Value
PVA8	PV Array	External	Irradiance		01/27/26	27-01-2026		Use Last Value

Time Series Load Flow Events							
Event ID	Date	Time	Device ID	Device Type	Action	Percentage	Duration Second

Time Series Load Flow System Summary

Total Energy MWh

Wind Generation	0
Solar Generation	3.3151218
AC Generation	3.3151218
DC Generation	1.6319926
System Generation	8.2622363
AC Demand	4.7550802
DC Demand	0
System Demand	4.7550802
Total Energy Loss	3.507156



Maximum Power	kW	Date	Time
Wind Generation	0.0	01-27-2026	23:00:00
Solar Generation	400.0	01-27-2026	12:00:00
AC Generation	400.0	01-27-2026	12:00:00
DC Generation	204.2	01-27-2026	20:00:00
AC Demand	200.8	01-27-2026	12:00:00
DC Demand	0.0	01-27-2026	23:00:00

Maximum Voltage	Bus ID	% Voltage	Date	Time
Phase A	Bus3	101.49	01-27-2026	12:00:00

Phase B	Bus3	101.49	01-27-2026	12:00:00
Phase C	Bus3	101.49	01-27-2026	12:00:00
Minimum Voltage	Bus ID			
Phase A	LOAD 1 - BUS	95.39	01-27-2026	00:00:00
Phase B	LOAD 1 - BUS	95.39	01-27-2026	00:00:00
Phase C	LOAD 1 - BUS	95.39	01-27-2026	00:00:00
Load Factor	98.7%			

Time Series ESS Report								
Battery ID	Total Charging		Total Discharging		Maximum Power (kW)		Total	Average
	Energy(kwh)	Time (hr)	Energy(kwh)	Time (hr)	Charge	Discharge	Δ SOC	% SOC
Battery Rack 1	0.000	0.00	0.000	0.00	0.000	0.000	0.00	0.00
Battery Rack 2	0.000	0.00	0.000	0.00	0.000	0.000	0.00	0.00
Battery Rack 3	0.000	0.00	0.000	0.00	0.000	0.000	0.00	0.00

Time Series Load Flow Results

Date	Time	Source kW	Source kvar	Wind kW	Solar kW	DC Source kW	AC Load kW	AC Load kvar	DC Load kW	Losses kW
27/01/2026	00:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
27/01/2026	01:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
27/01/2026	02:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
27/01/2026	03:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
27/01/2026	04:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
27/01/2026	05:00:00	17.6	0.0	0.0	17.6	186.5	196.87512	92.5	0.0	7.2
27/01/2026	06:00:00	55.9	0.0	0.0	55.9	147.9	197.28761	92.6	0.0	6.5
27/01/2026	07:00:00	116.4	0.0	0.0	116.4	87.5	197.93022	92.8	0.0	6.0
27/01/2026	08:00:00	199.3	0.0	0.0	199.3	5.9	198.79664	93.1	0.0	6.3
27/01/2026	09:00:00	284.1	0.0	0.0	284.1	-76.6	199.66663	93.4	0.0	7.9
27/01/2026	10:00:00	347.6	0.0	0.0	347.6	-137.5	200.30738	93.6	0.0	9.8
27/01/2026	11:00:00	390.8	0.0	0.0	390.8	-178.6	200.73756	93.8	0.0	11.4
27/01/2026	12:00:00	400.0	0.0	0.0	400.0	-187.3	200.82923	93.8	0.0	11.8
27/01/2026	13:00:00	394.7	0.0	0.0	394.7	-182.3	200.77689	93.8	0.0	11.6
27/01/2026	14:00:00	370.1	0.0	0.0	370.1	-158.9	200.53203	93.7	0.0	10.6
27/01/2026	15:00:00	305.5	0.0	0.0	305.5	-97.2	199.88377	93.5	0.0	8.4
27/01/2026	16:00:00	222.0	0.0	0.0	222.0	-16.4	199.03189	93.2	0.0	6.6
27/01/2026	17:00:00	137.1	0.0	0.0	137.1	67.1	198.148	92.9	0.0	6.0
27/01/2026	18:00:00	56.1	0.0	0.0	56.1	147.7	197.28928	92.6	0.0	6.5
27/01/2026	19:00:00	17.6	0.0	0.0	17.6	186.5	196.87512	92.5	0.0	7.2
27/01/2026	20:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
27/01/2026	21:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
27/01/2026	22:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6

27/01/2026	23:00:00	0.0	0.0	0.0	0.0	204.2	196.68528	92.4	0.0	7.6
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Worst Cases Device Loading Report

Device Information				% Maximum Loading Occurance				
Device ID	Type	Rating	Unit	A	B	C	Date	Time
Cable2	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable3	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable4	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable5	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable6	Cable	299.8	Amp	47.4	47.4	47.4	27/01/2026	12:00:00
Cable7	Cable	299.8	Amp	47.4	47.4	47.4	27/01/2026	12:00:00
Cable12	Cable	1396.8	Amp	23.6	23.6	23.6	27/01/2026	00:00:00
Cable13	Cable	213.2	Amp	58.1	58.1	58.1	27/01/2026	12:00:00
Cable14	Cable	1396.8	Amp	15.2	15.2	15.2	27/01/2026	00:00:00
Cable15	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable16	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable17	Cable	299.8	Amp	47.4	47.4	47.4	27/01/2026	12:00:00
Cable18	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable19	Cable	110.8	Amp	64.2	64.2	64.2	27/01/2026	12:00:00
Cable20	Cable	299.8	Amp	47.4	47.4	47.4	27/01/2026	12:00:00
Cable21	Cable	1396.8	Amp	0.0	0.0	0.0	27/01/2026	18:00:00
ISOLATION TX	Two-winding Transformer	500.0	kVA	46.0	0.0	0.0	27/01/2026	00:00:00
STEP DOWN TX	Two-winding Transformer	300.0	kVA	47.4	0.0	0.0	27/01/2026	12:00:00
STEP UP TX @ GEN SITE	Two-winding Transformer	500.0	kVA	29.1	0.0	0.0	27/01/2026	12:00:00

Worst Cases Bus Phase Voltage Report

Device Information			Maximum Voltage Occurance				Minimum Voltage Occurance			
ID	Nominal kV	Type	Phase	% Voltage	Date	Time	Phase	% Voltage	Date	Time
Bus3	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus4	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus5	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus7	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus9	0.40	LN	B	100.32%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus11	0.70	LN	B	100.12%	27/01/2026	08:00:00	A	100.12%	27/01/2026	12:00:00
Bus12	0.40	LN	B	100.26%	27/01/2026	12:00:00	C	98.53%	27/01/2026	00:00:00
Bus14	0.40	LN	B	100.21%	27/01/2026	12:00:00	C	98.24%	27/01/2026	00:00:00
Bus15	11.00	LN	A	99.15%	27/01/2026	12:00:00	C	97.17%	27/01/2026	00:00:00
Bus16	11.00	LN	B	99.14%	27/01/2026	12:00:00	C	97.15%	27/01/2026	00:00:00
Bus18	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus20	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus21	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus23	0.40	LN	B	101.49%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
Bus24	0.40	LN	B	100.32%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
LOAD 1 - BUS	0.40	LN	B	97.40%	27/01/2026	12:00:00	A	95.39%	27/01/2026	00:00:00
LOAD 2 - BUS	0.40	LN	B	99.78%	27/01/2026	12:00:00	C	97.82%	27/01/2026	00:00:00
Main Bus	0.40	LN	B	100.32%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
PVDB 1	0.40	LN	B	100.67%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
PVDB 2	0.40	LN	B	100.67%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
PVDB 3	0.40	LN	B	100.67%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00
PVDB 4	0.40	LN	B	100.67%	27/01/2026	12:00:00	C	98.35%	27/01/2026	00:00:00

Time Series Load Flow Group Summary			
Group Type		Zone	1
Total Energy		MWh	
Wind Generation		0.000	
Solar Generation		3.315	
AC Generation		3.315	
DC Generation		0.000	
System Generation		6.630	
AC Demand		4.755	
DC Demand		0.000	
System Demand		4.755	
Max Power		kW	Date
Wind Generation		0.0	01-27-2026
Solar Generation		400.0	01-27-2026
AC Generation		400.0	01-27-2026
DC Generation		0.0	01-27-2026
AC Demand		200.8	01-27-2026
DC Demand		0.0	01-27-2026
Load Factor		98.7%	

Time Series Load Flow Group Summary

Group Type

Area

1

Total Energy

MWh

Wind Generation

0.000

Solar Generation

3.315

AC Generation

3.315

DC Generation

0.000

System Generation

6.630

AC Demand

4.755

DC Demand

0.000

System Demand

4.755

Max Power

kW

Date

Time

Wind Generation

0.0

01-27-2026

23:00:00

Solar Generation

400.0

01-27-2026

12:00:00

AC Generation

400.0

01-27-2026

12:00:00

DC Generation

0.0

01-27-2026

23:00:00

AC Demand

200.8

01-27-2026

12:00:00

DC Demand

0.0

01-27-2026

23:00:00

Load Factor

98.7%