

2023 Operating Experience

CH-1

BEZNAU-1

SWITZERLAND

Status at end of year : **Operational**
 Operator : Axpo AG (Kernkraftwerk Beznau)
 Owner : Axpo AG (Kernkraftwerk Beznau)
 Reactor Supplier : WH (WESTINGHOUSE ELECTRIC CORPORATION)
 Turbine Supplier : BBC (BROWN BOVERI ET CIE)

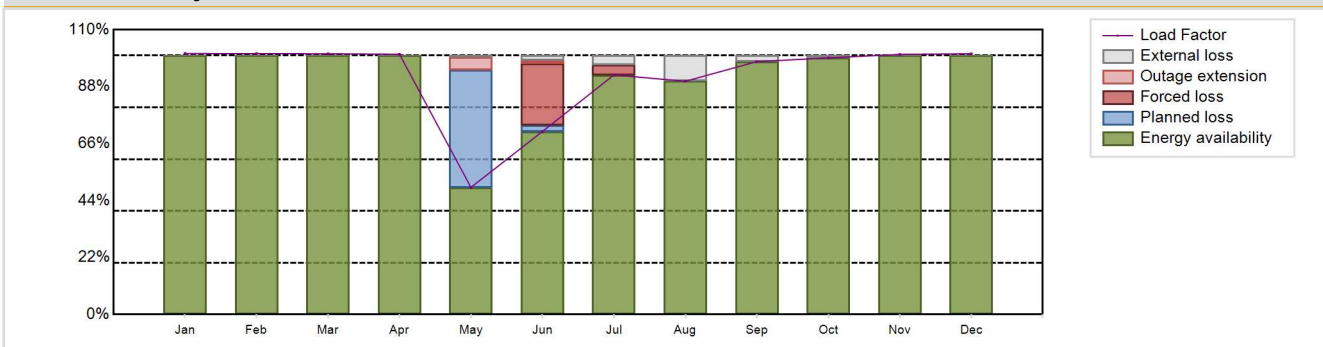


Reactor Unit Details		Key Dates	
Reactor type and model	: PWR / WH 2LP	Construction Date	: 1965-09-01
Thermal power	: 1130 MWth	Grid Date	: 1969-07-17
Gross electrical power	: 380 MWe	Commercial Date	: 1969-12-09
Reference unit power (net)	: 365 MWe	Age at end of year	: 54 years

Design Characteristics			
Primary Systems		Operating coolant pressure [MPa]	: 15.3
Reactor vessel centreline orientation	: Vertical	Reactor outlet temperature [°C]	: 313
Fuel material	: UO2/MOX	Number of SG	: 2
Refuelling type	: OFF-line	Containment type	: Double
Moderator material	: H2O	Containment design pressure [MPa]	: 0.31
Average fuel enrichment [% of U235]	: 4.68	Secondary systems	
Refuelling frequency [month]	: 12	Number of turbine-generators per unit/reactor	: 2
Part of the core refuelled [%]	: 17	Turbine speed [rpm]	: 3000
Average discharge burnup [MWd/t]	: 42000	Number of LP cylinders per turbine	: 2
Active core diameter [m]	: 2.45	HP cylinder inlet steam pressure [MPa]	: 5.3
Active core height/length [m]	: 3.05	Output voltage [kV]	: 15
Number of fissile fuel assemblies/bundles	: 121	Primary means of condenser cooling	: River (once-through)
Fuel linear heat generation rate [kW/m]	: 16.7	Number of main condensate pumps	: 2
Number of control rod assemblies	: 17	Number of FW pumps for full power operation	: 1
Number of external reactor coolant loops	: 2	Number of on-site safety related diesel generators	: 3
Coolant type	: H2O	Non-electrical applications	: DH

Annual Production Results (2023)			
Net Energy Production	: 2937.08 GW(e).h	Forced Loss Rate (FLR)	: 2.4 %
Energy Availability Factor (EAF)	: 91.52 %	Unplanned Capability Loss Factor (UCL)	: 2.81 %
Unit Capability Factor (UCF)	: 93.14 %	Planned Unavailability Factor (PUF)	: 4.05 %
Load Factor (LF)	: 91.86 %	Externally cause unavailability (XUF)	: 1.62 %
Operating Factor (OF)	: 95.63 %	Total off-line time	: 383 hours
Equivalent non-electrical energy generated (NEG)	: 49.33 GW(e).h		

Annual Summary

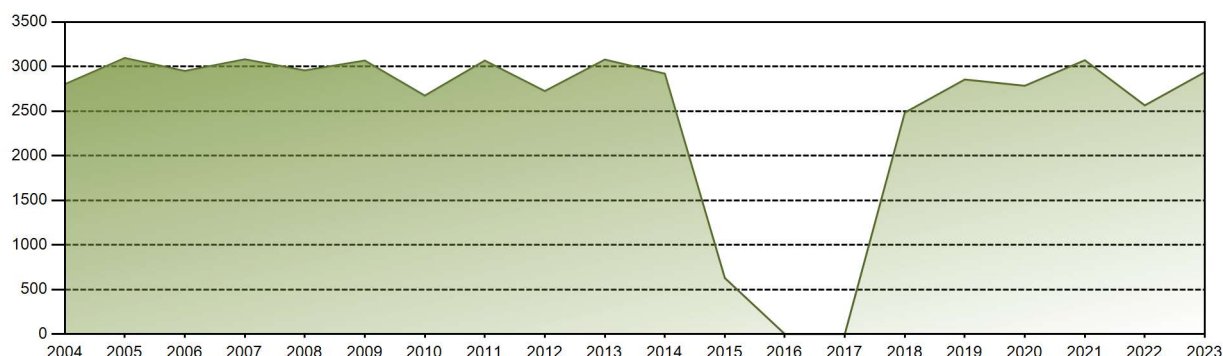


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
GW(e).h	273.78	247.18	273.15	264.18	133.31	185.77	251.25	244.66	256.69	269.52	264.05	273.53	2937.08
EAF [%]	100.00	100.00	100.00	100.00	49.09	70.69	92.52	90.09	97.67	99.11	100.00	100.00	91.52
UCF [%]	100.00	100.00	100.00	100.00	49.61	72.55	96.19	100.00	100.00	100.00	100.00	100.00	93.14
LF [%]	100.82	100.78	100.72	100.52	49.09	70.69	92.52	90.09	97.67	99.11	100.48	100.73	91.86
OF [%]	100.00	100.00	100.00	100.00	49.73	98.75	100.00	100.00	100.00	100.00	100.00	100.00	95.63
FLR [%]	0.00	0.00	0.00	0.00	0.00	24.77	3.81	0.00	0.00	0.00	0.00	0.00	2.40
UCL [%]	0.00	0.00	0.00	0.00	4.97	25.13	3.81	0.00	0.00	0.00	0.00	0.00	2.81
PUF [%]	0.00	0.00	0.00	0.00	45.41	2.32	0.00	0.00	0.00	0.00	0.00	0.00	4.05
XUF [%]	0.00	0.00	0.00	0.00	0.52	1.86	3.67	9.91	2.33	0.89	0.00	0.00	1.62

Historical Summary

Lifetime energy generation	: 272182.39 GW(e).h	Cumulative Forced Loss Rate (FLR)	: 2.64 %
Cumulative Energy Availability Factor (EAF)	: 80.83 %	Cumulative Unplanned Capability Loss Factor (UCL)	: 7.35 %
Cumulative Unit Capability Factor (UCF)	: 81.15 %	Cumulative Planned Unavailability Factor (PUF)	: 11.49 %
Cumulative Load Factor (LF)	: 80.44 %	Cumulative Externally cause unavailability (XUF)	: 0.32 %
Cumulative Operating Factor (OF)	: 82.39 %		

Electricity Production (net) [GWh]

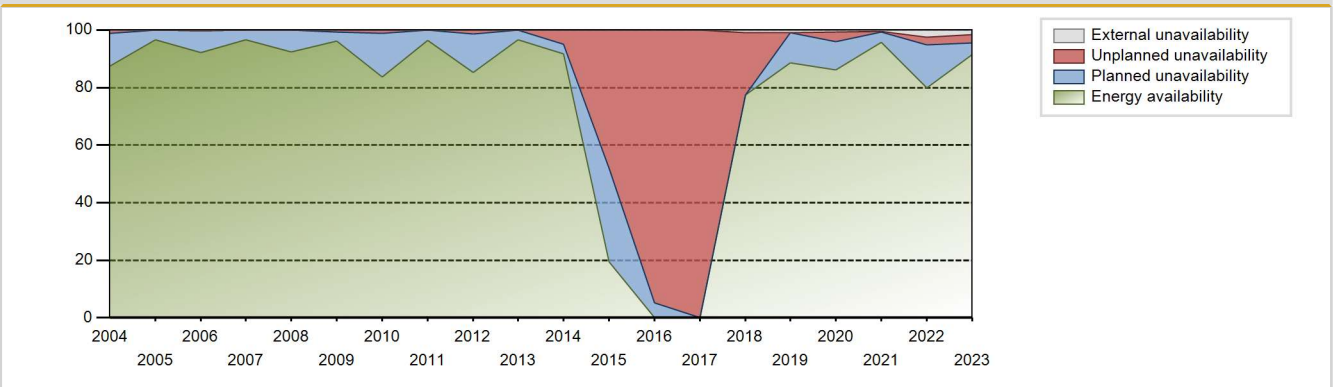


Performance for Years of Commercial Operation

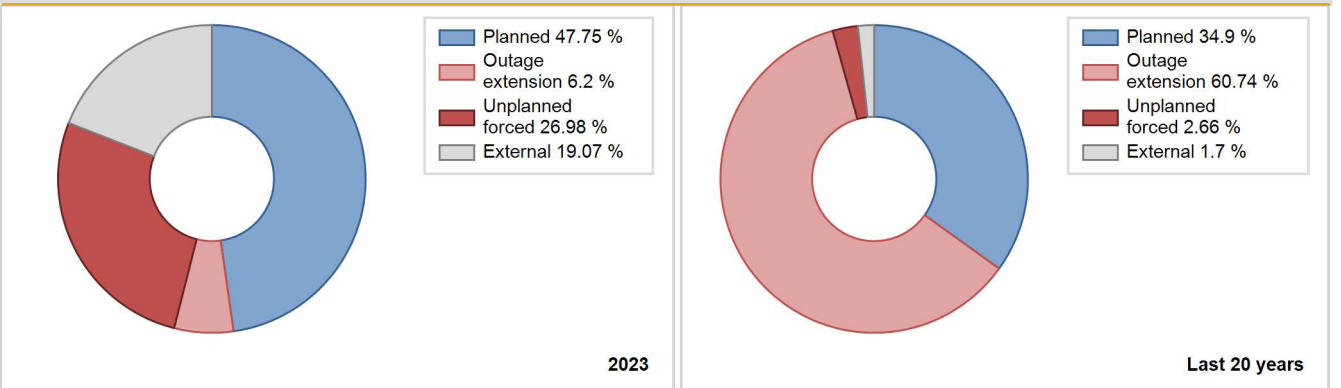
Year	Energy [GW-h]	Time Online [Hours]	Reference Unit Power [MW]	EAF	UCF	LF	OF	FLR	UCL	PUF	XUF
				[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
1969				Data not provided							
1970	1947.00	5917	364	61.05	61.05	61.06	67.55	0.00	0.00	38.95	0.00
1971	1700.50	5123	364	58.99	58.99	53.33	58.48	27.48	22.35	18.66	0.00
1972	1402.90	5391	280	61.32	61.32	57.04	61.37	38.68	38.68	0.00	0.00
1973	1655.00	6654	350	71.57	71.57	53.98	75.96	8.53	6.67	21.76	0.00
1974	2346.70	7177	350	78.10	78.10	76.54	81.93	2.77	2.22	19.67	0.00
1975	2490.90	7490	350	81.22	81.22	81.24	85.50	5.62	4.83	13.95	0.00
1976	2548.10	7530	350	83.46	83.46	82.88	85.72	0.65	0.55	15.99	0.00
1977	2596.30	7592	350	85.21	85.21	84.68	86.67	2.68	2.34	12.44	0.00
1978	2761.90	8031	350	89.46	89.46	90.08	91.68	0.13	0.12	10.42	0.00
1979	2658.80	7746	350	86.11	86.11	86.72	88.42	0.01	0.01	13.88	0.00
1980	2650.50	7682	350	85.69	85.69	86.21	87.45	4.56	4.09	10.21	0.00
1981	2569.70	7486	350	83.46	83.46	83.81	85.46	5.43	4.79	11.74	0.00
1982	2566.90	7553	350	83.52	83.52	83.72	86.22	3.14	2.71	13.77	0.00
1983	2551.70	7546	350	83.49	83.49	83.23	86.14	0.64	0.54	15.97	0.00
1984	2732.94	8001	350	88.85	88.85	88.89	91.09	0.29	0.26	10.89	0.00
1985	2634.26	7906	350	86.01	86.01	85.92	90.25	4.17	3.74	10.25	0.00
1986	2496.27	7403	350	81.60	81.60	81.42	84.51	9.03	8.10	10.30	0.00
1987	2486.26	7256	350	80.71	80.71	81.09	82.83	1.90	1.56	17.73	0.00
1988	2566.55	7499	350	82.97	82.97	83.48	85.37	1.56	1.32	15.72	0.00
1989	2433.15	7062	350	78.65	78.65	79.36	80.62	7.30	6.19	15.16	0.00
1990	2562.48	7506	350	84.38	84.38	83.58	85.68	0.41	0.34	15.28	0.00
1991	2495.26	7430	350	83.48	83.48	81.38	84.82	1.61	1.36	15.16	0.00
1992	2477.39	7303	350	81.70	81.70	80.58	83.14	0.71	0.58	17.71	0.00
1993	2158.43	6241	350	69.37	69.88	70.40	71.24	1.02	0.72	29.39	0.52
1994	2686.88	7610	350	85.05	86.19	87.63	86.87	0.35	0.30	13.51	1.13
1995	2850.46	7993	350	90.15	90.48	92.97	91.24	0.32	0.29	9.23	0.33
1996	2753.18	7704	353	86.81	87.45	88.60	87.70	0.35	0.31	12.24	0.64
1997	2708.21	7731	365	85.12	87.46	84.70	88.25	0.18	0.16	12.38	2.35
1998	3183.13	8760	365	99.84	99.89	99.55	100.00	0.06	0.06	0.05	0.06
1999	2841.27	8074	365	88.60	91.33	88.86	92.17	0.15	0.13	8.54	2.72
2000	2539.20	7113	365	78.30	79.22	79.20	80.98	0.46	0.36	20.41	0.92
2001	3090.18	8504	365	96.76	96.76	96.65	97.08	0.00	0.00	3.24	0.00
2002	2908.78	8000	365	91.03	91.26	90.97	91.32	0.03	0.89	7.85	0.23
2003	3061.76	8494	365	96.18	96.92	95.76	96.96	0.00	0.00	3.08	0.74
2004	2801.17	7758	365	87.44	87.53	87.36	88.31	0.37	1.15	11.32	0.09
2005	3095.96	8491	365	96.64	96.67	96.82	96.92	0.01	0.01	3.32	0.03

2006	2950.68	8114	365	92.19	92.35	92.28	92.63	0.01	0.01	7.65	0.15
2007	3081.34	8486	365	96.67	96.70	96.37	96.87	0.00	0.00	3.30	0.03
2008	2956.58	8143	365	92.45	92.45	92.22	92.70	0.11	0.10	7.44	0.00
2009	3067.33	8460	365	96.27	96.30	95.93	96.58	0.57	0.68	3.02	0.03
2010	2673.99	7347	365	83.66	83.66	83.63	83.87	0.04	1.13	15.21	0.00
2011	3067.13	8458	365	96.42	96.42	95.93	96.55	0.00	0.02	3.56	0.00
2012	2724.73	7508	365	85.26	85.26	84.98	85.47	0.02	1.32	13.42	0.00
2013	3078.45	8473	365	96.59	96.59	96.28	96.72	0.00	0.00	3.41	0.00
2014	2920.61	8047	365	91.64	91.64	91.34	91.86	4.87	4.88	3.48	0.00
2015	628.54	1715	365	19.56	19.56	19.66	19.58	0.00	47.99	32.46	0.00
2016	0.00	0	365	0.00	0.00	0.00	0.00	0.00	94.81	5.19	0.00
2017	0.00	0	365	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
2018	2483.69	6897	365	77.34	78.25	77.68	78.73	0.42	21.75	0.00	0.91
2019	2854.84	7851	365	88.65	89.60	89.29	89.62	0.00	0.00	10.40	0.95
2020	2784.66	7661	365	86.25	87.02	86.85	87.22	3.61	3.26	9.71	0.78
2021	3071.24	8449	365	95.64	96.21	96.05	96.45	0.09	0.08	3.71	0.57
2022	2564.59	7244	365	79.92	82.35	80.21	82.69	0.21	2.68	14.97	2.43
2023	2937.08	8377	365	91.52	93.14	91.86	95.63	2.40	2.81	4.05	1.62

Key Factors in Last 20 Years [%]



Energy Losses by Type



Full Outages, Analysis by Cause

Outage Cause	2023			1969 to 2023		
	Hours Lost			Average hours lost per reactor-year		
	Planned	Unplanned	External	Planned	Unplanned	External
A. Plant equipment problem/failure		46			191	
B. Refuelling without maintenance	337			44		
C. Inspection, maintenance or repair combined with refuelling				783		
D. Inspection, maintenance or repair without refuelling				13		
E. Testing of plant systems or components					0	
F. Major backfitting, refurbishment or upgrading activities with refuelling				62		
H. Nuclear regulatory requirements					437	
L. Human factor related					0	
N. Environmental conditions (lack of cooling water due to dry weather, cooling water temperature limits, flood, storm, lightning, etc.)						2
Subtotal	337	46		902	628	2
Total		383			1532	

Equipment Related Unplanned Full Outages, Analysis by System

System	2023		1969 to 2023	
	Hours Lost		Average hours lost per reactor-year	
11. Reactor and Accessories		46		454
12. Reactor I&C Systems				67
13. Reactor Auxiliary Systems				9
14. Safety Systems				3
15. Reactor Cooling Systems				12
16. Steam generation systems				66
21. Fuel Handling and Storage Facilities				0
31. Turbine and auxiliaries				2
32. Feedwater and Main Steam System				9
35. All other I&C Systems				0
42. Electrical Power Supply Systems				5
Total		46		627

Highlights (2023)

Plant refuelling outage
Shutdown TG 12 due to leak in feedwater system

2023 Operating Experience

CH-3

BEZNAU-2

SWITZERLAND

Status at end of year : **Operational**
 Operator : Axpo AG (Kernkraftwerk Beznau)
 Owner : Axpo AG (Kernkraftwerk Beznau)
 Reactor Supplier : WH (WESTINGHOUSE ELECTRIC CORPORATION)
 Turbine Supplier : BBC (BROWN BOVERI ET CIE)



Reactor Unit Details

Reactor type and model : PWR / WH 2LP
 Thermal power : 1130 MWth
 Gross electrical power : 380 MWe
 Reference unit power (net) : 365 MWe

Key Dates

Construction Date : 1968-01-01
 Grid Date : 1971-10-23
 Commercial Date : 1972-03-04
 Age at end of year : 52 years

Design Characteristics

Primary Systems

Reactor vessel centreline orientation : Vertical
 Fuel material : UO2
 Refuelling type : OFF-line
 Moderator material : H2O
 Average fuel enrichment [% of U235] : 4.68
 Refuelling frequency [month] : 12
 Part of the core refuelled [%] : 17
 Average discharge burnup [MWd/t] : 42000
 Active core diameter [m] : 2.45
 Active core height/length [m] : 3.05
 Number of fissile fuel assemblies/bundles : 121
 Fuel linear heat generation rate [kW/m] : 16.7
 Number of control rod assemblies : 25
 Number of external reactor coolant loops : 2
 Coolant type : H2O

Operating coolant pressure [MPa] : 15.5
 Reactor outlet temperature [°C] : 313
 Number of SG : 2
 Containment type : Double
 Containment design pressure [MPa] : 0.31

Secondary systems

Number of turbine-generators per unit/reactor : 2
 Turbine speed [rpm] : 3000
 Number of LP cylinders per turbine : 2
 HP cylinder inlet steam pressure [MPa] : 5.3
 Output voltage [kV] : -
 Primary means of condenser cooling : River (once-through)
 Number of main condensate pumps : 2
 Number of FW pumps for full power operation : 1
 Number of on-site safety related diesel generators : 3

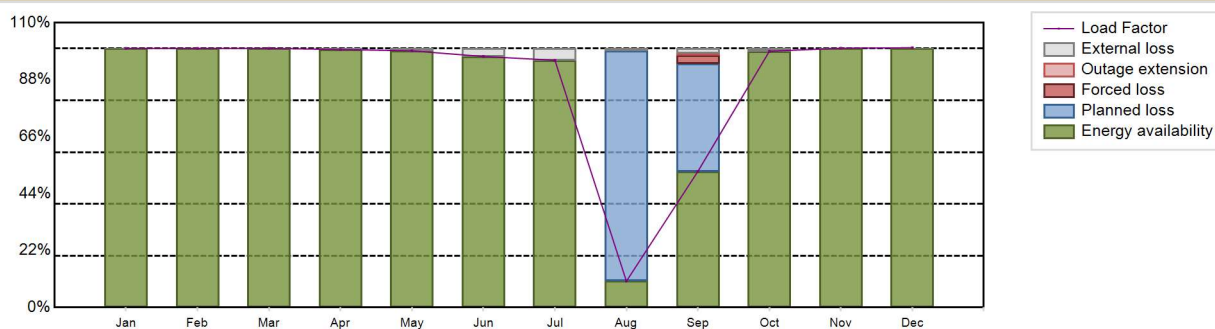
Non-electrical applications : DH

Annual Production Results (2023)

Net Energy Production : 2804.42 GW(e).h
 Energy Availability Factor (EAF) : 87.65 %
 Unit Capability Factor (UCF) : 88.69 %
 Load Factor (LF) : 87.71 %
 Operating Factor (OF) : 89.26 %
 Equivalent non-electrical energy generated (NEG) : 2.83 GW(e).h

Forced Loss Rate (FLR) : 0.31 %
 Unplanned Capability Loss Factor (UCL) : 0.34 %
 Planned Unavailability Factor (PUF) : 10.97 %
 Externally cause unavailability (XUF) : 1.04 %
 Total off-line time : 941 hours

Annual Summary

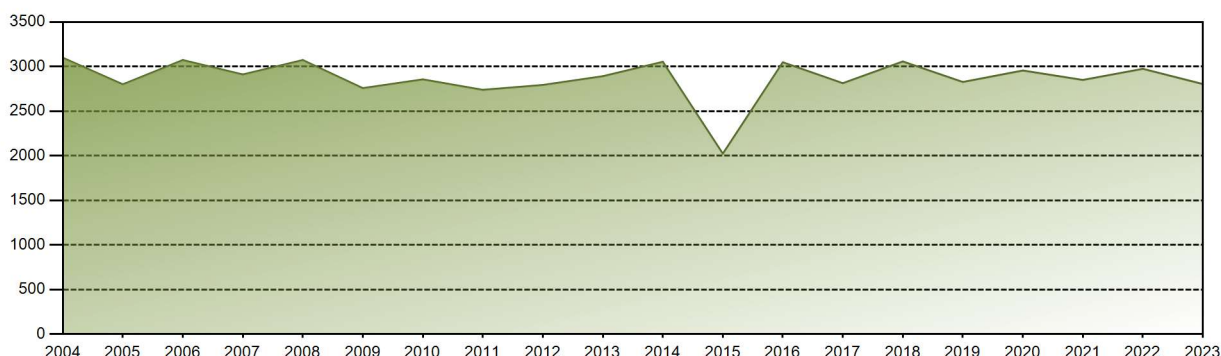


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
GW(e).h	271.79	245.46	271.40	261.89	269.20	254.81	259.35	27.57	138.16	269.15	263.17	272.45	2804.42
EAF [%]	100.00	100.00	100.00	99.65	99.13	96.96	95.50	10.15	52.57	98.98	100.00	100.00	87.65
UCF [%]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	10.94	54.45	100.00	100.00	100.00	88.69
LF [%]	100.09	100.07	100.08	99.65	99.13	96.96	95.50	10.15	52.57	98.98	100.14	100.33	87.71
OF [%]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	11.16	61.11	100.00	100.00	100.00	89.26
FLR [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.86	0.00	0.00	0.00	0.31
UCL [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.08	0.00	0.00	0.00	0.34
PUF [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.06	41.47	0.00	0.00	0.00	10.97
XUF [%]	0.00	0.00	0.00	0.35	0.87	3.04	4.50	0.79	1.87	1.02	0.00	0.00	1.04

Historical Summary

Lifetime energy generation	: 286421.08 GW(e).h	Cumulative Forced Loss Rate (FLR)	: 1.11 %
Cumulative Energy Availability Factor (EAF)	: 87.6 %	Cumulative Unplanned Capability Loss Factor (UCL)	: 1.14 %
Cumulative Unit Capability Factor (UCF)	: 87.84 %	Cumulative Planned Unavailability Factor (PUF)	: 11.02 %
Cumulative Load Factor (LF)	: 87.83 %	Cumulative Externally cause unavailability (XUF)	: 0.25 %
Cumulative Operating Factor (OF)	: 88.86 %		

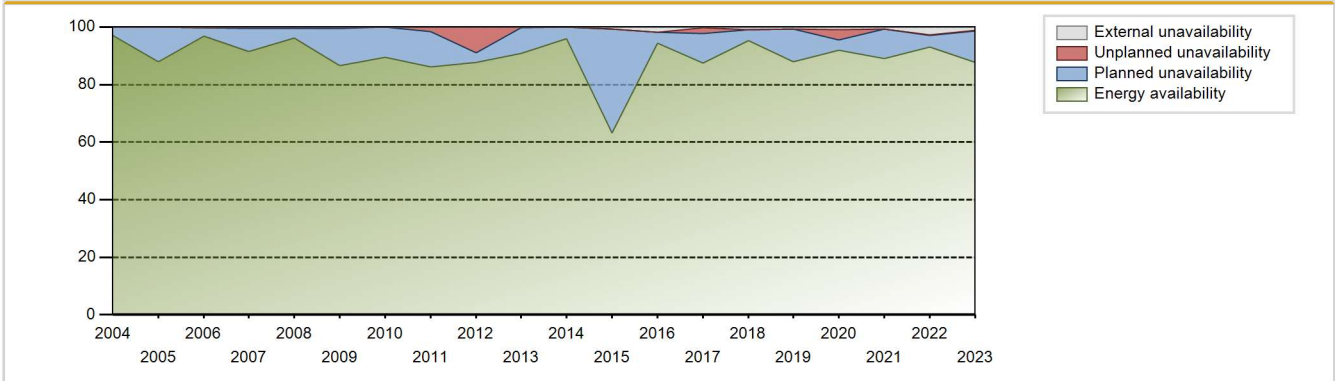
Electricity Production (net) [GWh]



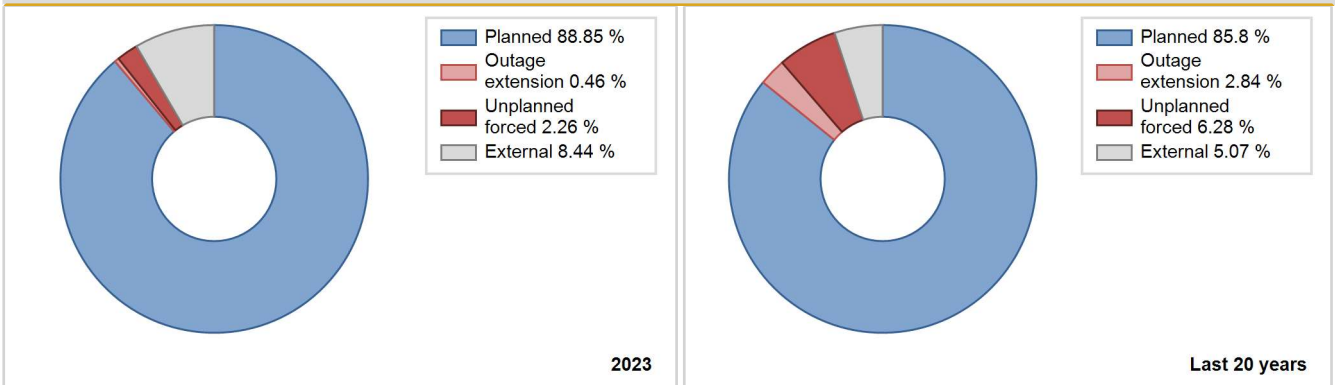
Year	Energy [GW-h]	Time Online [Hours]	Reference Unit Power [MW]	Performance for Years of Commercial Operation							
				EAF	UCF	LF	OF	FLR	UCL	PUF	XUF
				[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
1972	2618.50	7624	364	83.06	83.06	82.10	84.20	9.60	8.82	8.12	0.00
1973	2220.70	7042	350	78.45	78.45	72.43	80.39	1.91	1.53	20.02	0.00
1974	2527.80	7607	350	83.53	83.53	82.45	86.84	0.65	0.55	15.92	0.00
1975	2547.00	7503	350	83.05	83.05	83.07	85.65	3.98	3.45	13.50	0.00
1976	2652.20	7777	350	86.62	86.62	86.27	88.54	0.29	0.25	13.13	0.00
1977	2690.90	7758	350	85.55	85.55	87.77	88.56	0.67	0.58	13.87	0.00
1978	2753.10	7888	350	86.69	86.69	89.79	90.05	3.14	2.81	10.49	0.00
1979	2700.00	7835	350	86.70	86.70	88.06	89.44	2.84	2.54	10.77	0.00
1980	2559.00	7279	350	81.05	81.05	83.24	82.87	6.13	5.29	13.66	0.00
1981	2768.80	7868	350	88.77	88.77	90.31	89.82	0.13	0.11	11.12	0.00
1982	2722.10	7811	350	87.58	87.58	88.78	89.17	0.25	0.22	12.20	0.00
1983	2790.50	7977	350	89.60	89.60	91.01	91.06	0.70	0.63	9.77	0.00
1984	2724.21	7874	350	87.54	87.54	88.61	89.64	0.19	0.17	12.29	0.00
1985	2629.06	7647	350	84.95	84.95	85.75	87.29	2.99	2.62	12.44	0.00
1986	2769.81	7983	350	90.18	90.18	90.34	91.13	0.06	0.05	9.76	0.00
1987	2527.62	7535	350	82.38	82.38	82.44	86.02	2.34	1.98	15.64	0.00
1988	2630.19	7604	350	84.53	84.53	85.55	86.57	0.57	0.49	14.98	0.00
1989	2643.34	7614	350	85.11	85.11	86.21	86.92	0.65	0.55	14.34	0.00
1990	2636.07	7568	350	85.25	85.25	85.98	86.39	0.23	0.20	14.55	0.00
1991	2619.53	7551	350	84.48	84.48	85.44	86.20	0.37	0.31	15.21	0.00
1992	2375.90	6836	350	76.26	76.26	77.28	77.82	0.19	0.15	23.60	0.00
1993	2650.93	7517	350	84.86	85.09	86.46	85.81	0.25	0.21	14.70	0.23
1994	3062.80	8710	350	98.78	98.94	99.90	99.43	1.01	1.01	0.05	0.16
1995	2560.94	7247	350	82.58	82.72	83.53	82.73	0.41	0.34	16.94	0.14
1996	2754.10	7912	351	87.91	88.51	89.13	90.07	0.80	0.71	10.78	0.60
1997	3090.24	8732	357	99.54	99.54	98.81	99.68	0.18	0.18	0.28	0.01
1998	2717.82	7755	357	87.26	87.76	86.91	88.53	0.44	0.38	11.85	0.50
1999	2217.19	6322	357	70.28	70.68	70.90	72.17	3.67	2.69	26.62	0.41
2000	3071.03	8499	365	96.20	96.20	95.79	96.76	0.00	0.00	3.80	0.00
2001	2568.68	7107	365	80.67	80.68	80.34	81.13	0.33	0.27	19.05	0.01
2002	3012.01	8292	365	94.62	94.63	94.20	94.66	0.26	1.98	3.39	0.00
2003	2920.29	8070	365	91.85	92.05	91.33	92.12	0.79	0.74	7.21	0.20
2004	3099.37	8556	365	97.02	97.02	96.66	97.39	0.00	0.00	2.98	0.00
2005	2801.02	7728	365	87.84	87.95	87.60	88.22	0.01	0.01	12.03	0.11
2006	3073.23	8517	365	96.80	97.06	96.12	97.23	0.00	0.00	2.94	0.26
2007	2911.65	8063	365	91.46	91.48	91.06	92.04	0.15	0.41	8.11	0.02
2008	3073.36	8505	365	96.25	96.25	95.86	96.82	0.52	0.51	3.25	0.00

2009	2758.47	7615	365	86.56	86.67	86.27	86.93	0.52	0.45	12.88	0.10
2010	2856.53	7865	365	89.59	89.59	89.34	89.78	0.00	0.00	10.41	0.00
2011	2739.21	7564	365	86.11	86.11	85.67	86.35	0.00	1.68	12.21	0.00
2012	2793.97	7715	365	87.65	87.65	87.14	87.83	6.98	9.01	3.33	0.00
2013	2892.03	7968	365	90.82	90.82	90.45	90.96	0.00	0.18	9.00	0.00
2014	3053.52	8433	365	95.99	95.99	95.50	96.27	0.13	0.13	3.89	0.00
2015	2023.36	5611	365	63.18	63.87	63.28	64.05	0.00	0.00	36.13	0.68
2016	3048.37	8474	365	94.49	96.27	95.08	96.47	0.00	0.13	3.60	1.78
2017	2813.62	7735	365	87.42	87.75	88.00	88.30	1.18	1.94	10.31	0.33
2018	3057.41	8445	365	95.26	96.28	95.62	96.40	0.00	0.00	3.72	1.02
2019	2827.27	7790	365	88.01	88.73	88.42	88.93	0.06	0.05	11.22	0.72
2020	2956.04	8175	365	91.92	92.83	92.20	93.07	3.52	3.54	3.63	0.91
2021	2850.23	7871	365	89.08	89.69	89.14	89.85	0.00	0.00	10.31	0.61
2022	2974.93	8406	365	93.02	95.78	93.04	95.96	0.21	0.21	4.02	2.75
2023	2804.42	7819	365	87.65	88.69	87.71	89.26	0.31	0.34	10.97	1.04

Key Factors in Last 20 Years [%]



Energy Losses by Type



Full Outages, Analysis by Cause

Outage Cause	2023			1972 to 2023		
	Hours Lost			Average hours lost per reactor-year		
	Planned	Unplanned	External	Planned	Unplanned	External
A. Plant equipment problem/failure		5			90	
B. Refuelling without maintenance				58		
C. Inspection, maintenance or repair combined with refuelling	936			749		
D. Inspection, maintenance or repair without refuelling				28		
F. Major backfitting, refurbishment or upgrading activities with refuelling				61		
K. Load-following (frequency control, reserve shutdown due to reduced energy demand, reactive power)						0
L. Human factor related					1	
Subtotal	936	5		896	91	0
Total		941			987	

Equipment Related Unplanned Full Outages, Analysis by System

System	2023	1972 to 2023
	Hours Lost	Average hours lost per reactor-year
11. Reactor and Accessories	5	5
12. Reactor I&C Systems		7
13. Reactor Auxiliary Systems		1
14. Safety Systems		1
15. Reactor Cooling Systems		22
16. Steam generation systems		19
17. Safety I&C Systems (excluding reactor I&C)		1
31. Turbine and auxiliaries		10
32. Feedwater and Main Steam System		3
33. Circulating Water System		3
34. Miscellaneous Systems		8
35. All other I&C Systems		1
42. Electrical Power Supply Systems		9
Total	5	90

Highlights (2023)

Plant refuelling outage