REFERENCE DATA SERIES No. 2
2021 Edition

Nuclear Power Reactors in the World

IAEA
International Atomic Energy Agency

NUCLEAR POWER REACTORS IN THE WORLD

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INTRODUCTION

Nuclear Power Reactors in the World is an annual publication that presents the most recent data pertaining to reactor units in IAEA Member States.

This forty-first edition of Reference Data Series No. 2 provides a detailed comparison of various statistics up to and including 31 December 2020. The tables and figures contain the following information:

- General statistics on nuclear reactors in IAEA Member States;
- Technical data on specific reactors that are either planned, under construction or operational, or that have been shut down or decommissioned;
- Performance data on reactors operating in IAEA Member States, as reported to the IAEA.

The data compiled in this publication are a product of the IAEA's Power Reactor Information System (PRIS). The PRIS database is a comprehensive source of data on all nuclear power reactors in the world. It includes specification and performance history data on operational reactors as well as on reactors under construction or in the decommissioning process. Data are collected by the IAEA via designated national correspondents in Member States. Information and data received by the IAEA through 1 June 2021 are included in this publication. Any modifications received at a later date are available in the PRIS database.

PRIS outputs are available in the IAEA's annual publications and on the PRIS web page (http://www.iaea.org/pris). Detailed outputs are accessible to registered users through on-line applications. Enquiries should be addressed to:

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DEFINITIONS

Performance factors

$$\text{EAF (\%)} = \frac{(\text{REG} - \text{PEL} - \text{UEL} - \text{XEL})}{\text{REG}} \times 100$$

$$\text{UCF (\%)} = \frac{(\text{REG} - \text{PEL} - \text{UEL})}{\text{REG}} \times 100$$

$$\text{UCL (\%)} = \frac{\text{UEL}}{\text{REG}} \times 100$$

$$\text{PCL (\%)} = \frac{\text{PEL}}{\text{REG}} \times 100$$

$$\text{LF (\%)} = \frac{\text{EG}}{\text{REG}} \times 100$$

$$\text{OF (\%)} = \frac{\text{On-line hours}}{\text{Total hours}} \times 100$$

where

EAF is the energy availability factor, expressed in per cent.

UCF is the unit capability factor, expressed in per cent.

UCL is the unplanned capability loss factor, expressed in per cent.

PCL is the planned capability loss factor, expressed in per cent.

LF is the load factor, expressed in per cent.

OF is the operating factor, expressed in per cent.

REG Reference energy generation: The net electrical energy (MW·h), supplied by a unit continuously operated at the reference unit power for the duration of the entire reference period.

PEL Planned energy loss: The energy (MW·h) that was not supplied during the period because of planned shutdowns or load reductions due to causes under plant management control. Energy losses are considered to be planned if they are scheduled at least four weeks in advance.

UEL Unplanned energy loss: The energy (MW·h) that was not supplied during the period because of unplanned shutdowns, outage extensions, or load reductions due to causes under plant management control. Energy losses are considered to be unplanned if they are not scheduled at least four weeks in advance.

XEL External energy loss: The energy (MW·h) that was not supplied owing to constraints beyond plant management control that reduced plant availability.

EG The net electrical energy supplied during the reference period as measured at the unit outlet terminals after deducting the electrical energy taken by unit auxiliaries and the losses in transformers that are considered to be integral parts of the unit.

Planned reactors

The IAEA considers a reactor as planned from the date when a construction licence application has been submitted to the relevant national regulatory authorities to the construction start date.

Construction start

The date when the first major placing of concrete, usually for the base mat of the reactor building, is carried out.

First criticality

The date when the reactor is made critical for the first time.

Grid connection

The date when the plant is first connected to the electrical grid for the supply of power. After this date, the plant is considered as operational.

Commercial operation

The date when the plant is handed over by the contractors to the owner and declared

officially in commercial operation.

Long term shutdown (suspended operation)

A unit is considered to be in long term shutdown if it has been shut down for an extended period (usually several years) initially without any firm recovery schedule, but with the intention to restart the unit eventually. Suspended operation is a new term for this status.

Permanent shutdown

The date when the plant is officially declared to be shut down by the owner and taken out of operation permanently.

NSSS supplier

The supplier of a power reactor unit's nuclear steam supply system.

Units and energy conversion

1 terawatt-hour (TW·h) = 10^6 megawatt-hours (MW·h)

For an average power plant,

1 TW·h = 0.39 megatonnes of coal equivalent (input),

= 0.23 megatonnes of oil equivalent (input)

TABLE 1. OVERVIEW OF POWER REACTORS AND NUCLEAR SHARE, 31 DEC. 2020

Country	Reactors in Operation		Long Term Shutdown Reactors		Reactors Under Construction		Nuclear Electricity Supplied	
	Number of units	Net Capacity MW(e)	Number of units	Net Capacity MW(e)	Number of units	Net Capacity MW(e)	TW.h	% of Total
ARGENTINA	3	1641			1	25	10.0	7.5
ARMENIA	1	415					2.6	34.5
BANGLADESH					2	2160		
BELARUS	1	1110			1	1110	0.3	1.0
BELGIUM	7	5942					32.8	39.1
BRAZIL	2	1884			1	1340	13.2	2.1
BULGARIA	2	2006					15.9	40.8
CANADA	19	13624					92.2	14.6
CHINA	50	47528			13	12565	344.7	4.9
CZECH REP.	6	3934					28.4	37.3
FINLAND	4	2794			1	1600	22.4	33.9
FRANCE	56	61370			1	1630	338.7	70.6
GERMANY	6	8113					60.9	11.3
HUNGARY	4	1902					15.2	48.0
INDIA	22	6255			7	4824	40.4	3.3
IRAN,ISL.REP	1	915			1	974	5.8	1.7
JAPAN	33	31679			2	2653	43.1	5.1
KOREA,REP.OF	24	23150			4	5360	152.6	29.6
MEXICO	2	1552					10.9	4.9
NETHERLANDS	1	482					3.9	3.3
PAKISTAN	5	1318			2	2028	9.6	7.1
ROMANIA	2	1300					10.6	19.9
RUSSIA	38	28578			3	3459	201.8	20.6
SLOVAKIA	4	1837			2	880	14.4	53.1
SLOVENIA	1	688					6.0	37.8
SOUTH AFRICA	2	1860					11.6	5.9

TABLE 1. OVERVIEW OF POWER REACTORS AND NUCLEAR SHARE, 31 DEC. 2020 — continued

Country	Reactors in Operation		Long Term Shutdown Reactors		Reactors Under Construction		Nuclear Electricity Supplied	
	Number of units	Net Capacity MW(e)	Number of units	Net Capacity MW(e)	Number of units	Net Capacity MW(e)	TW.h	% of Total
SPAIN	7	7121					55.8	22.2
SWEDEN	6	6882					47.4	29.8
SWITZERLAND	4	2960					23.0	32.9
TURKEY					2	2228		
UAE	1	1345			3	4035	1.6	1.1
UK	15	8923			2	3260	45.7	14.5
UKRAINE	15	13107			2	2070	71.5	51.2
USA	94	96553			2	2234	789.9	19.7
TOTAL	**442**	**392612**			**52**	**54435**	**2553.2**	

Notes:

The total includes the following data from Taiwan, China:

— 4 units, 3844 MW(e) in operation;

— 30.3 TW·h of nuclear electricity generation, representing 12.7% of the total electricity generated there.

TABLE 2. TYPE AND NET ELECTRICAL POWER OF OPERATIONAL REACTORS, 31 DEC. 2020

Country	PWR		BWR		GCR		PHWR		LWGR		FBR		Totals	
	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)
ARGENTINA							3	1641					3	1641
ARMENIA	1	415											1	415
BELARUS	1	1110											1	1110
BELGIUM	7	5942											7	5942
BRAZIL	2	1884											2	1884
BULGARIA	2	2006											2	2006
CANADA							19	13624					19	13624
CHINA	47	46154					2	1354			1	20	50	47528
CZECH REP.	6	3934											6	3934
FINLAND	2	1014	2	1780									4	2794
FRANCE	56	61370											56	61370
GERMANY	5	6825	1	1288									6	8113
HUNGARY	4	1902											4	1902
INDIA	2	1864	2	300			18	4091					22	6255
IRAN,ISL.REP	1	915											1	915
JAPAN	16	14120	17	17559									33	31679
KOREA,REP.OF	21	21327					3	1823					24	23150
MEXICO			2	1552									2	1552
NETHERLANDS	1	482											1	482
PAKISTAN	4	1228					1	90					5	1318
ROMANIA							2	1300					2	1300
RUSSIA	24	18840							12	8358	2	1380	38	28578
SLOVAKIA	4	1837											4	1837
SLOVENIA	1	688											1	688
SOUTH AFRICA	2	1860											2	1860
SPAIN	6	6057	1	1064									7	7121

TABLE 2. TYPE AND NET ELECTRICAL POWER OF OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	PWR		BWR		GCR		PHWR		LWGR		FBR		Totals	
	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)
SWEDEN	2	2202	4	4680									6	6882
SWITZERLAND	3	1740	1	1220									4	2960
UAE	1	1345											1	1345
UK	1	1198			14	7725							15	8923
UKRAINE	15	13107											15	13107
USA	63	63844	31	32709									94	96553
TOTAL	**302**	**287084**	**63**	**64122**	**14**	**7725**	**48**	**23923**	**12**	**8358**	**3**	**1400**	**442**	**392612**

Notes:

1. The totals include 4 units, 3844 MW(e) in Taiwan, China.

2. During 2020, 5 reactors, 5521 MW(e) were newly connected to the grid.

TABLE 3. TYPE AND NET ELECTRICAL POWER OF REACTORS UNDER CONSTRUCTION, 31 DEC. 2020

Country	PWR		BWR		PHWR		LWGR		FBR		HTGR		Totals	
	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)
ARGENTINA	1	25											1	25
BANGLADESH	2	2160											2	2160
BELARUS	1	1110											1	1110
BRAZIL	1	1340											1	1340
CHINA	11	11723							1	642	1	200	13	12565
FINLAND	1	1600											1	1600
FRANCE	1	1630											1	1630
INDIA	2	1834			4	2520			1	470			7	4824
IRAN,ISL.REP	1	974											1	974
JAPAN			2	2653									2	2653
KOREA,REP.OF	4	5360											4	5360
PAKISTAN	2	2028											2	2028
RUSSIA	3	3459											3	3459
SLOVAKIA	2	880											2	880
TURKEY	2	2228											2	2228
UAE	3	4035											3	4035
UK	2	3260											2	3260
UKRAINE	2	2070											2	2070
USA	2	2234											2	2234
TOTAL	**43**	**47950**	**2**	**2653**	**4**	**2520**			**2**	**1112**	**1**	**200**	**52**	**54435**

TABLE 4. REACTOR YEARS OF EXPERIENCE, UP TO 31 DEC. 2020

Country	In Operation		Long Term Shutdown		Permanently Shutdown		All Operating and Shutdown Reactors		Operating Experience	
	Number	Net Capacity MW(e)	Number	Net Capacity MW(e)	Number	Net Capacity MW(e)	Number	Net Capacity MW(e)	Years	Months
ARGENTINA	3	1641					3	1641	91	2
ARMENIA	1	415			1	376	2	791	46	8
BELARUS	1	1110					1	1110	0	2
BELGIUM	7	5942			1	10	8	5952	310	7
BRAZIL	2	1884					2	1884	59	3
BULGARIA	2	2006			4	1632	6	3638	169	3
CANADA	19	13624			6	2143	25	15767	788	6
CHINA	50	47528					50	47528	418	8
CZECH REP.	6	3934					6	3934	176	10
FINLAND	4	2794					4	2794	167	4
FRANCE	56	61370			14	5549	70	66919	2337	0
GERMANY	6	8113			30	18262	36	26375	852	7
HUNGARY	4	1902					4	1902	142	2
INDIA	22	6255					22	6255	548	11
IRAN,ISL.REP	1	915					1	915	9	4
ITALY					4	1423	4	1423	80	8
JAPAN	33	31679			27	17119	60	48798	1932	6
KAZAKHSTAN					1	52	1	52	25	10
KOREA,REP.OF	24	23150			2	1237	26	24387	596	2
LITHUANIA					2	2370	2	2370	43	6
MEXICO	2	1552					2	1552	57	11
NETHERLANDS	1	482			1	55	2	537	76	0
PAKISTAN	5	1318					5	1318	87	6
ROMANIA	2	1300					2	1300	37	11
RUSSIA	38	28578			9	3032	47	31610	1372	7
SLOVAKIA	4	1837			3	909	7	2746	176	7

TABLE 4. REACTOR YEARS OF EXPERIENCE, UP TO 31 DEC. 2020 — continued

Country	In Operation		Long Term Shutdown		Permanently Shutdown		All Operating and Shutdown Reactors		Operating Experience	
	Number	Net Capacity MW(e)	Number	Net Capacity MW(e)	Number	Net Capacity MW(e)	Number	Net Capacity MW(e)	Years	Months
SLOVENIA	1	688					1	688	39	3
SOUTH AFRICA	2	1860					2	1860	72	3
SPAIN	7	7121			3	1067	10	8188	350	1
SWEDEN	6	6882			7	4054	13	10936	474	0
SWITZERLAND	4	2960			2	379	6	3339	228	11
UAE	1	1345					1	1345	0	5
UK	15	8923			30	4715	45	13638	1634	7
UKRAINE	15	13107			4	3515	19	16622	533	6
USA	94	96553			39	18141	133	114694	4600	10
TOTAL	**442**	**392612**			**192**	**87248**	**634**	**479860**	**18772**	**1**

Notes:

1. The total includes the following data from Taiwan, China:

   — operational reactors, 4 units, 3844 MW(e); permanently shutdown reactors, 2 units, 1208 MW(e); 232 years, 8 months.

2. Operating experience is counted from the grid connection excluding any long term shutdown period.

TABLE 5. OPERATIONAL REACTORS AND NET ELECTRICAL POWER (1990–2020)

Country	Number of Units and Net Capacity [MW(e)] Connected to the Grid (Latest in each year)															
	1990		1995		2000		2005		2010		2015		2019		2020	
	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)
ARGENTINA	2	935	2	935	2	978	2	935	2	935	3	1632	3	1641	3	1641
ARMENIA			1	376	1	376	1	376	1	375	1	375	1	375	1	415
BELARUS															1	1110
BELGIUM	7	5501	7	5631	7	5712	7	5801	7	5926	7	5913	7	5930	7	5942
BRAZIL	1	626	1	626	2	1976	2	1901	2	1884	2	1884	2	1884	2	1884
BULGARIA	5	2585	6	3538	6	3760	4	2722	2	1906	2	1926	2	2006	2	2006
CANADA	20	13993	21	14902	14	9998	18	12584	18	12604	19	13524	19	13554	19	13624
CHINA			3	2188	3	2188	9	6587	13	10065	31	26774	48	45518	50	47528
CZECH REP.	4	1632	4	1782	5	2611	6	3373	6	3675	6	3930	6	3932	6	3934
FINLAND	4	2310	4	2310	4	2656	4	2676	4	2716	4	2752	4	2794	4	2794
FRANCE	56	55808	56	58573	59	63080	59	63260	58	63130	58	63130	58	63130	56	61370
GERMANY	21	21250	19	20972	19	21283	17	20339	17	20490	8	10799	6	8113	6	8113
HUNGARY	4	1710	4	1729	4	1729	4	1755	4	1889	4	1889	4	1902	4	1902
INDIA	7	1324	10	1746	14	2508	15	2993	19	4189	21	5308	22	6255	22	6255
IRAN,ISL.REP											1	915	1	915	1	915
JAPAN	41	30867	50	39625	52	43245	55	47593	54	46821	43	40290	33	31679	33	31679
KAZAKHSTAN	1	135	1	50												
KOREA,REP.OF	9	7220	11	9115	16	12990	20	16810	21	18698	24	21733	24	23172	24	23150
LITHUANIA	2	2760	2	2370	2	2370	1	1185								
MEXICO	1	640	2	1256	2	1290	2	1360	2	1300	2	1440	2	1552	2	1552
NETHERLANDS	2	539	2	510	1	449	1	450	1	482	1	482	1	482	1	482
PAKISTAN	1	125	1	125	2	425	2	425	2	425	3	690	5	1318	5	1318
ROMANIA					1	655	1	655	2	1300	2	1300	2	1300	2	1300
RUSSIA	29	18898	30	19848	30	19848	31	21743	32	22693	35	25413	38	28437	38	28578
SLOVAKIA	4	1632	4	1632	6	2440	6	2442	4	1816	4	1814	4	1814	4	1837

TABLE 5. OPERATIONAL REACTORS AND NET ELECTRICAL POWER (1990–2020) — continued

Country	Number of Units and Net Capacity [MW(e)] Connected to the Grid (Latest in each year)															
	1990		1995		2000		2005		2010		2015		2019		2020	
	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)	No.	MW(e)
SLOVENIA	1	620	1	620	1	676	1	656	1	666	1	688	1	688	1	688
SOUTH AFRICA	2	1840	2	1840	2	1840	2	1800	2	1800	2	1860	2	1860	2	1860
SPAIN	9	7099	9	7097	9	7468	9	7591	8	7514	7	7121	7	7121	7	7121
SWEDEN	12	9826	12	10028	11	9397	10	8905	10	9303	10	9648	7	7740	6	6882
SWITZERLAND	5	2942	5	3056	5	3170	5	3220	5	3238	5	3333	4	2960	4	2960
UAE															1	1345
UK	37	11360	35	12910	33	12490	23	11852	19	10137	15	8918	15	8923	15	8923
UKRAINE	15	13020	15	13045	13	11195	15	13107	15	13107	15	13107	15	13107	15	13107
USA	108	96228	108	98068	103	96297	103	98145	104	101211	99	99167	96	98152	94	96553
TOTAL	**416**	**318253**	**434**	**341387**	**435**	**349984**	**441**	**368125**	**441**	**375277**	**441**	**382807**	**443**	**392098**	**442**	**392612**

Notes:

The total includes the following data from Taiwan, China:

— 1990: 6 units, 4828 MW(e); 1995: 6 units, 4884 MW(e); 2000: 6 units, 4884 MW(e); 2005: 6 units, 4884 MW(e); 2010: 6 units, 4982 MW(e); 2015: 6 units, 5052 MW(e); 2019: 4 units, 3844 MW(e); 2020: 4 units, 3844 MW(e).

TABLE 6. NUCLEAR ELECTRICITY PRODUCTION AND SHARE (1990–2020)

Country	Nuclear Production [TW.h] of Reactors Connected to the Grid (Latest in each year)															
	1990		1995		2000		2005		2010		2015		2019		2020	
	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total
ARGENTINA	6.72	19.8	6.57	11.8	5.74	7.3	6.37	6.9	6.69	5.9	6.52	4.8	7.93	5.9	10.01	7.5
ARMENIA	0.00	NA	0.00	NA	1.84	33.0	2.50	42.7	2.29	39.4	2.57	34.5	2.03	27.8	2.55	34.5
BELARUS	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.34	1.0
BELGIUM	40.59	60.1	39.30	55.5	45.81	56.8	45.34	55.6	45.73	50.0	24.83	37.5	41.42	47.6	32.79	39.1
BRAZIL	2.06	1.0	2.33	1.0	5.59	1.9	9.20	2.5	13.77	3.1	13.89	2.8	15.22	2.7	13.24	2.1
BULGARIA	13.51	35.7	16.22	46.4	16.79	45.0	17.38	44.1	14.24	33.1	14.70	31.3	15.87	37.5	15.94	40.8
CANADA	69.87	14.8	93.98	17.3	69.12	11.8	86.83	14.5	85.50	15.1	95.64	16.6	94.85	14.9	92.17	14.6
CHINA	0.00	NA	12.13	1.2	16.02	1.2	50.33	2.0	70.96	1.8	161.20	3.0	330.12	4.9	344.75	4.9
CZECH REP.	11.77	NA	12.23	20.0	12.71	18.7	23.25	30.5	26.44	33.3	25.34	32.5	28.58	35.2	28.37	37.3
FINLAND	18.13	35.0	18.13	29.9	21.58	32.2	22.36	32.9	21.89	28.4	22.33	33.7	22.91	34.7	22.35	33.9
FRANCE	297.61	74.5	358.71	76.1	395.39	76.4	431.18	78.5	410.09	74.1	419.04	76.3	382.40	70.6	338.67	70.6
GERMANY	139.37	33.1	146.13	29.6	160.66	30.6	154.61	26.6	133.01	22.6	86.81	14.1	70.99	0.0	60.92	11.3
HUNGARY	12.89	51.4	13.20	42.3	13.35	40.6	13.02	37.2	14.66	42.1	14.96	52.7	15.41	49.2	15.18	48.0
INDIA	5.29	2.2	6.99	1.9	14.23	3.1	15.73	2.8	20.48	2.8	34.64	3.5	40.74	3.2	40.37	3.3
IRAN,ISL.REP	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	3.20	1.3	5.87	1.8	5.79	1.7
JAPAN	187.19	27.1	275.51	33.4	306.24	33.8	280.50	29.3	280.25	29.2	4.35	0.5	65.68	7.5	43.10	5.1
KAZAKHSTAN	0.00	NA	0.08	0.1	0.00	0.0	0.00	NA	0.00	0.0	0.00	0.0	0.00	NA	0.00	NA
KOREA,REP.OF	50.26	49.1	60.21	36.1	103.54	40.7	137.59	44.7	141.89	32.2	157.20	31.7	138.81	26.2	152.58	29.6
LITHUANIA	15.70	NA	10.64	86.1	7.42	73.9	9.54	70.3	0.00	0.0	0.00	0.0	0.00	NA	0.00	NA
MEXICO	2.78	2.6	7.53	6.0	7.92	3.9	10.32	5.0	5.59	3.6	11.18	6.8	10.88	4.5	10.86	4.9
NETHERLANDS	3.29	4.8	3.78	4.9	3.70	4.3	3.77	3.9	3.75	3.4	3.86	3.7	3.70	3.2	3.89	3.2
PAKISTAN	0.38	1.1	0.46	0.9	0.90	1.6	2.41	2.8	2.56	2.6	4.33	4.4	9.07	6.6	9.64	7.1
ROMANIA	0.00	NA	0.00	NA	5.05	10.9	5.11	8.6	10.70	19.5	10.71	17.3	10.37	18.5	10.58	19.9
RUSSIA	109.62	NA	91.59	11.8	120.10	15.0	137.64	15.8	159.41	17.1	182.81	18.6	195.54	19.7	201.82	20.6
SLOVAKIA	11.16	NA	11.35	44.1	15.17	53.4	16.34	56.1	13.54	51.8	14.08	55.9	14.28	53.9	14.36	53.1
SLOVENIA	4.39	NA	4.57	39.5	4.55	37.4	5.61	42.4	5.38	37.3	5.37	38.0	5.53	37.0	6.04	37.8

TABLE 6. NUCLEAR ELECTRICITY PRODUCTION AND SHARE (1990–2020) — continued

Country	Nuclear Production [TW.h] of Reactors Connected to the Grid (Latest in each year)															
	1990		1995		2000		2005		2010		2015		2019		2020	
	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total	TW.h	% of Total
SOUTH AFRICA	8.47	5.6	11.29	6.5	13.00	6.6	12.24	5.5	12.90	5.2	10.97	4.7	13.60	6.7	11.62	5.9
SPAIN	51.98	35.9	53.49	34.1	59.49	27.6	54.99	19.6	59.26	20.1	54.76	20.3	55.86	21.4	55.83	22.2
SWEDEN	65.27	45.9	67.17	46.6	54.81	39.0	69.58	44.9	55.73	38.1	54.46	34.3	64.43	34.0	47.36	29.8
SWITZERLAND	22.40	42.6	23.58	39.9	25.05	38.2	22.11	38.0	25.34	38.0	22.16	33.5	25.37	23.9	23.05	32.9
UAE	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	0.00	NA	1.56	1.1
UK	58.77	19.7	70.64	25.4	72.99	21.9	75.34	20.0	56.85	15.6	63.89	18.9	51.03	15.6	45.67	14.5
UKRAINE	71.26	NA	65.78	37.8	72.56	47.3	83.40	48.5	83.95	48.1	82.41	56.5	78.14	53.9	71.55	51.2
USA	578.08	20.6	673.52	22.5	755.55	19.8	783.35	19.3	807.08	19.6	798.01	19.5	809.36	19.7	789.92	19.7
TOTAL	**1890.35**		**2190.94**		**2443.85**		**2626.34**		**2629.82**		**2441.34**		**2657.16**		**2553.21**	
Note: The world total includes the following data from Taiwan, China																
	31.54	38.3	33.80	28.8	37.00	21.2	38.40	17.9	39.89	19.3	35.14	16.3	31.15	13.4	30.34	12.7

TABLE 7. ANNUAL CONSTRUCTION STARTS AND CONNECTIONS TO THE GRID (1954–2020)

Year	Construction Starts		Connections to the Grid		Reactors in Operation	
	Units	MW(e)	Units	MW(e)	Units	MW(e)
1954	1	60	1	5	1	5
1955	8	260			1	5
1956	5	577	1	35	2	65
1957	13	1836	3	119	5	209
1958	6	476	1	35	6	269
1959	7	976	5	176	11	548
1960	11	1010	4	438	15	1087
1961	7	1529	1	15	16	1104
1962	8	1379	9	955	25	2223
1963	5	1722	9	500	33	2677
1964	9	2792	8	1022	40	3686
1965	9	3244	8	1879	48	5910
1966	15	7052	8	1528	55	7539
1967	25	16287	11	2165	64	9595
1968	37	26855	7	1029	69	10648
1969	13	9398	10	3685	78	14121
1970	37	25597	6	3410	84	17656
1971	18	12701	16	7726	99	24320
1972	28	21359	16	8880	113	32797
1973	30	24932	20	12644	132	43761
1974	38	35337	26	17354	154	61021
1975	38	36696	15	10289	169	70414
1976	43	41879	19	14277	186	83992
1977	23	21556	18	13261	199	96202
1978	23	21466	20	15801	218	111740
1979	27	23113	8	6999	225	117814

TABLE 7. ANNUAL CONSTRUCTION STARTS AND CONNECTIONS TO THE GRID (1954–2020) — continued

Year	Construction Starts		Connections to the Grid		Reactors in Operation	
	Units	MW(e)	Units	MW(e)	Units	MW(e)
1980	20	19245	21	15245	245	133037
1981	17	16206	23	20389	267	153832
1982	18	19165	19	15664	284	168317
1983	15	12152	23	19025	306	187756
1984	13	11332	33	31079	336	218452
1985	19	15356	33	31381	363	245779
1986	8	7286	27	27311	389	272074
1987	13	11434	22	21926	407	295812
1988	7	7722	14	13637	416	305212
1989	6	4054	12	10597	420	311942
1990	5	3287	10	10543	416	318253
1991	2	2246	4	3738	415	321924
1992	3	3038	6	4809	418	325261
1993	4	3611	9	9012	427	333914
1994	2	1227	5	4338	429	336904
1995	0		5	3556	434	341387
1996	1	610	6	7080	438	347281
1997	5	4495	3	3501	434	347880
1998	3	2150	4	3059	430	344900
1999	4	4588	4	2721	432	347353
2000	7	5403	6	3178	435	349984
2001	1	1108	3	2738	438	352715
2002	6	3440	6	5209	439	357481
2003	1	202	2	1675	437	359827
2004	2	1336	5	4785	438	364673
2005	3	2907	4	3674	441	368125
2006	5	4767	2	1492	435	369581

TABLE 7. ANNUAL CONSTRUCTION STARTS AND CONNECTIONS TO THE GRID (1954–2020) — continued

Year	Construction Starts		Connections to the Grid		Reactors in Operation	
	Units	MW(e)	Units	MW(e)	Units	MW(e)
2007	7	5363	3	1842	439	371707
2008	10	10707			438	371557
2009	12	13704	2	1068	437	370697
2010	16	15968	5	3774	441	375277
2011	4	1888	7	4013	435	368921
2012	7	7054	3	3011	437	373245
2013	10	11344	4	4060	434	371775
2014	3	2480	5	4660	438	376262
2015	8	8481	10	9493	441	382807
2016	3	3014	10	9607	447	390491
2017	5	4896	4	3373	448	391721
2018	5	6339	9	10323	450	396618
2019	5	6021	6	5252	443	392098
2020	4	4473	5	5521	442	392612

TABLE 8. NUMBER OF NEW REACTORS CONNECTED TO THE GRID AND MEDIAN CONSTRUCTION TIME IN MONTHS

Country	1986 to 1990		1991 to 1995		1996 to 2000		2001 to 2005		2006 to 2010		2011 to 2015		2016 to 2020	
	No.	Months	No.	Months	No.	Months	No.	Months	No.	Months	No.	Months	No.	Months
ARGENTINA											1	396		
BELARUS														
BRAZIL					1	176								
BULGARIA	1	89	1	113										
CANADA	5	101	2	97										
CHINA			3	73			6	59	4	68	18	67	17	68
CZECH REP.	3	93			1	167	1	191						
FRANCE	15	86	3	93	4	124								
GERMANY	6	103												
HUNGARY	2	90												
INDIA	1	152	3	120	4	122	1	64	4	81	2	123	1	170
IRAN,ISL.REP											1	222		
JAPAN	8	49	10	46	3	42	4	47	1	53				
KOREA,REP.OF	4	62	2	61	5	56	4	54	1	51	3	56	2	103
LITHUANIA	1	116												
MEXICO	1	151	1	210										
PAKISTAN					1	83					1	64	2	67
ROMANIA					1	161			1	290				
RUSSIA	4	72	1	109			2	233	1	323	3	108	6	117
SLOVAKIA					2	168								
SPAIN	2	96												
UAE														
UK	4	98	1	80										
UKRAINE	6	58	1	113			2	227						
USA	22	146	1	221	1	272							1	250
WORLDWIDE	**85**	**93**	**29**	**82**	**23**	**121**	**20**	**59**	**12**	**77**	**29**	**68**	**29**	**93**

Note: Construction time is measured from the first pouring of concrete to the connection of the unit to the grid.

TABLE 9. CONSTRUCTION STARTS DURING 2020

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial
					Thermal	Gross	Net		Supplier	Start	Connection	Operation
CHINA	CN -63	SANAOCUN-1	PWR	HRP1000	3180	1210	1117	CGCNP	CFHI	2020-12		
	CN -62	TAIPINGLING-2	PWR	HPR1000	3190	1202	1116	HZNP	CFHI	2020-10		
	CN -58	ZHANGZHOU-2	PWR	HPR-1000	3190	1212	1126	ZGZEC	CFHI	2020-9		
TURKEY	TR -2	AKKUYU-2	PWR	VVER V-509	3200	1200	1114	ANC	AEM	2020-4		

Note: During 2020, construction started on 4 reactors (4473 MW(e)).

TABLE 10. CONNECTIONS TO THE GRID DURING 2020

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Construction	First	Grid
					Thermal	Gross	Net		Supplier	Start	Critically	Connection
BELARUS	BY -1	BELARUSIAN-1	PWR	VVER V-491	3200	1194	1110	BelNPP	JSC ASE	2013-11	2020-10	2020-11
CHINA	CN -51	FUQING-5	PWR	HPR1000	3060	1150	1000	FQNP	NPIC	2015-5	2020-10	2020-11
	CN -53	TIANWAN-5	PWR	CNP-1000	2905	1118	1000	JNPC	SHE	2015-12	2020-7	2020-8
RUSSIA	RU -164	LENINGRAD 2-2	PWR	VVER V-491	3200	1188	1066	REA	AEM	2010-4	2020-8	2020-10
UAE	AE -01	BARAKAH-1	PWR	APR-1400	3983	1400	1345	NAWAH	KEPCO	2012-7	2020-7	2020-8

Note: During 2020, 5 reactors (5521 MW(e)) were newly connected to the grid.

TABLE 11. SCHEDULED CONNECTIONS TO THE GRID DURING 2021

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Construction	First	Grid Date
					Thermal	Gross	Net		Supplier	Start	Critically	
FINLAND	FI -5	OLKILUOTO-3	PWR	EPR	4300	1720	1600	TVO	ORANO	2005-8		
RUSSIA	RU -166	KURSK 2-1	PWR	VVER V-510K	3300	1255	1175	REA	AEM	2018-4		2022-6

Note: During 2021, 2 reactors (2775 MW(e)) are expected to achieve connection to grid.

TABLE 12. REACTORS PLANNED FOR CONSTRUCTION AS KNOWN ON 31 DEC. 2020

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Expected
					Thermal	Gross	Net		Supplier	Construction Start
CHINA	CN -900	BAMAOSHAN	PWR	CPR-1000	2905	1080	900			
	CN -904	FANGCHENGGANG-5	PWR				1000			
	CN -905	FANGCHENGGANG-6	PWR				1000			
	CN -908	HAIYANG-3	PWR	AP-1000	3415	1253	1126	SDNPC	WH	
	CN -909	HAIYANG-4	PWR	AP-1000	3415	1253	1126	SDNPC	WH	
	CN -910	HONGSHIDING-1	PWR				0			
	CN -911	HONGSHIDING-2	PWR	ACPR1000			0	HSDNPC	DEC	
	CN -912	JIYANG-1	PWR				1000			
	CN -913	JIYANG-2	PWR				1000			
	CN -914	JIYANG-3	PWR				1000			
	CN -915	JIYANG-4	PWR				1000			
	CN -916	LUFENG-1	PWR	CPR-1000			1000	LFNPC		
	CN -917	LUFENG-2	PWR	CPR-1000			1000	LFNPC		
	CN -918	PENGZE-1	PWR				1250			
	CN -919	PENGZE-2	PWR				1250			
	CN -920	PENGZE-3	PWR				1250			
	CN -921	PENGZE-4	PWR				1250			
	CN -922	SANMEN-3	PWR	AP-1000	3400	1251	1157	SMNPC	WH/MHI	
	CN -923	SANMEN-4	PWR	AP-1000	3400	1251	1157	SMNPC	WH/MHI	
	CN -924	SANMING-1	FBR	BN-800	2100	860	800	FSNPC		
	CN -925	SANMING-2	FBR	BN-800	2100	860	800	FSNPC		
	CN -59	SN-1	PWR	CAP-1400			1534	SNPDP	SNERDI	
	CN -60	SN-2	PWR	CAP-1400			1534	SNPDP	SNERDI	
	CN -926	TAOHUAJIANG-1	PWR				0			
	CN -927	TAOHUAJIANG-2	PWR				0			
	CN -928	XIANNING-1	PWR				0			
	CN -929	XIANNING-2	PWR				0			

TABLE 12. REACTORS PLANNED FOR CONSTRUCTION AS KNOWN ON 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Expected
					Thermal	Gross	Net		Supplier	Construction Start
CHINA	CN -930	XUDABU-1	PWR	CPR-1000	2905	1080	1000	LNPC	DEC	
	CN -931	XUDABU-2	PWR	CPR-1000	2905	1080	1000	LNPC	DEC	
FINLAND	FI -6	HANHIKIVI-1	PWR	VVER V-522	3200		1200	FV	AEM	
HUNGARY	HU -5	PAKS-5	PWR	VVER V-527	3200	1265	1185	PAKS II	AEM	
	HU -6	PAKS-6	PWR	VVER V-527	3200	1265	1185	PAKS II	AEM	
INDIA	IN -33	GORAKHPUR-1	PHWR	PHWR-700		700	630	NPCIL		
	IN -34	GORAKHPUR-2	PHWR	PHWR-700		700	630	NPCIL		
IRAN,ISL.REP	IR -5	BUSHEHR-3	PWR	VVER V-528	3000	1000	915	NPPDCO	JSC ASE	
	IR -9	DARKHOVAIN	PWR	IR-360	1113	360	330	NPPDCO		
JAPAN	JP -76	HAMAOKA-6	BWR	ABWR	3926	1400	1350	CHUBU		
	JP -69	HIGASHI DORI-1 (TEPCO)	BWR	ABWR	3926	1385	1343	TEPCO	H/G	
	JP -74	HIGASHI DORI-2 (TEPCO)	BWR	ABWR	3926	1385	1343	TEPCO		
	JP -72	HIGASHI DORI-2 (TOHOKU)	BWR	ABWR			1067	TOHOKU		
	JP -62	KAMINOSEKI-1	BWR	ABWR	3926	1373	1325	CHUGOKU		
	JP -63	KAMINOSEKI-2	BWR	ABWR	3926	1373	1325	CHUGOKU		
	JP -75	SENDAI-3	PWR	APWR	4466	1590	1590	KYUSHU		
	JP -67	TSURUGA-3	PWR	APWR	4466	1538	1475	JAPCO	MHI	
	JP -68	TSURUGA-4	PWR	APWR	4466	1538	1475	JAPCO	MHI	
RUSSIA	RU -171	BALTIC-2	PWR	VVER V-491	3200	1194	1109	REA	AEM	
	RU -202	BASHKIR-1	PWR	VVER V-510	3300	1255	1115	REA	AEM	
	RU -203	BASHKIR-2	PWR	VVER V-510	3300	1255	1115	REA	AEM	
	RU -207	BELOYARSK-5	FBR	BN-1200	3000	1220	0	REA	AEM	
	RU -177	CENTRAL-1	PWR	VVER V-510	3300	1255	0	REA	AEM	
	RU -178	CENTRAL-2	PWR	VVER V-510	3300	1255	0	REA	AEM	
	RU -175	KOLA 2-1	PWR	-	3200	1200	0	REA	AEM	
	RU -176	KOLA 2-2	PWR	-	3200	1200	1100	REA	AEM	
	RU -190	KURSK 2-3	PWR	VVER V-510K	3300	1255	1175	REA	AEM	

TABLE 12. REACTORS PLANNED FOR CONSTRUCTION AS KNOWN ON 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Expected
					Thermal	Gross	Net		Supplier	Construction Start
RUSSIA	RU -191	KURSK 2-4	PWR	VVER V-510K	3300	1255	1175	REA	AEM	
	RU -165	LENINGRAD 2-3	PWR	VVER V-491	3200	1199	1111	REA	AEM	
	RU -167	LENINGRAD 2-4	PWR	VVER V-491	3200	1199	1111	REA	AEM	
	RU -181	NIZHEGORODSK-1	PWR		3300	1255	1175	REA	AEM	
	RU -182	NIZHEGORODSK-2	PWR		3300	1255	1175	REA	AEM	
	RU -187	SEVERSK-1	PWR	VVER V-510	3300	1255	0	REA	AEM	
	RU -188	SEVERSK-2	PWR	VVER V-510	3300	1255	0	REA	AEM	
	RU -198	SMOLENSK 2-1	PWR	VVER V-510	3300	1255	0	REA	AEM	
	RU -199	SMOLENSK 2-2	PWR	VVER V-510	3300	1255	0	REA	AEM	
	RU -204	SOUTH URALS-1	FBR	BN-1200	3000	1220	0	REA	AEM	
	RU -205	SOUTH URALS-2	FBR	BN-1200	3000	1220	0	REA	AEM	
TURKEY	TR -3	AKKUYU-3	PWR	VVER V-509	3200	1200	1114	ANC	AEM	2021-3
	TR -4	AKKUYU-4	PWR	VVER V-509	3200	1200	1114	ANC	AEM	

Note: Status as of 31 December 2020, 67 reactors (57091 MW(e)) were known as planned.

TABLE 13. REACTORS UNDER CONSTRUCTION, 31 DEC. 2020

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Construction	First	Grid	Commercial
					Thermal	Gross	Net		Supplier	Start	Criticality	Connection	Operation
ARGENTINA	AR -4	CAREM25	PWR	CAREM Prototyp	100	29	25	CNEA	CNEA	2014-2			
BANGLADESH	BD -1	ROOPPUR-1	PWR	VVER V-523	3200	1200	1080	NPCBL	AEM	2017-11			
	BD -2	ROOPPUR-2	PWR	VVER V-523	3200	1200	1080	NPCBL	AEM	2018-7			
BELARUS	BY -2	BELARUSIAN-2	PWR	VVER V-491	3200	1194	1110	BelNPP	JSC ASE	2014-4			
BRAZIL	BR -3	ANGRA-3	PWR	PRE KONVOI	3900	1405	1340	ELETROBR	KWU	2010-6	2026-8	2026-8	2026-11
CHINA	CN -55	FANGCHENGGANG-3	PWR	HPR1000	3150	1180	1000	GFNPC	CFHI	2015-12			
	CN -56	FANGCHENGGANG-4	PWR	HPR1000	3150	1180	1000	GFNPC	CFHI	2016-12			
	CN -52	FUQING-6	PWR	HPR1000	3060	1150	1000	FQNP	NPIC	2015-12			
	CN -49	HONGYANHE-5	PWR	ACPR-1000	2905	1119	1061	LHNPC	DEC	2015-3	2021-6		
	CN -50	HONGYANHE-6	PWR	ACPR-1000	2905	1119	1061	LHNPC	DEC	2015-7			
	CN -63	SANAOCUN-1	PWR	HRP1000	3180	1210	1117	CGCNP	CFHI	2020-12			
	CN -44	SHIDAO BAY-1	HTGR	HTR-PM	500	211	200	HSNPC	TSINGHUA	2012-12			
	CN -61	TAIPINGLING-1	PWR	HPR1000	3190	1200	1116	HZNP	DEC	2019-12			
	CN -62	TAIPINGLING-2	PWR	HPR1000	3190	1202	1116	HZNP	CFHI	2020-10			
	CN -54	TIANWAN-6	PWR	CNP-1000	2905	1118	1000	JNPC	CFHI	2016-9	2021-5	2021-5	2021-6
	CN -00	XIAPU-1	FBR	CFR600	1882	682	642	CNNC	CIAE(Chi	2017-12			
	CN -57	ZHANGZHOU-1	PWR	HPR1000	3180	1212	1126	ZGZEC	CFHI	2019-10			
	CN -58	ZHANGZHOU-2	PWR	HPR-1000	3190	1212	1126	ZGZEC	CFHI	2020-9			
FINLAND	FI -5	OLKILUOTO-3	PWR	EPR	4300	1720	1600	TVO	ORANO	2005-8			2022-2
FRANCE	FR -74	FLAMANVILLE-3	PWR	EPR	4300	1650	1630	EDF	ORANO	2007-12			
INDIA	IN -30	KAKRAPAR-3	PHWR	PHWR-700	2166	700	630	NPCIL	NPCIL	2010-11	2020-7	2021-1	
	IN -31	KAKRAPAR-4	PHWR	PHWR-700	2166	700	630	NPCIL	NPCIL	2010-11			
	IN -35	KUDANKULAM-3	PWR	VVER V-412	3000	1000	917	NPCIL	JSC ASE	2017-6	2022-9		2023-3
	IN -36	KUDANKULAM-4	PWR	VVER V-412	3000	1000	917	NPCIL	JSC ASE	2017-10	2023-5		2023-11
	IN -29	PFBR	FBR	Prototype	1253	500	470	BHAVINI		2004-10			
	IN -21	RAJASTHAN-7	PHWR	Horizontal Pre	2177	700	630	NPCIL	NPCIL	2011-7			
	IN -22	RAJASTHAN-8	PHWR	Horizontal Pre	2177	700	630	NPCIL	NPCIL	2011-9			

TABLE 13. REACTORS UNDER CONSTRUCTION, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Construction	First	Grid	Commercial
					Thermal	Gross	Net		Supplier	Start	Criticality	Connection	Operation
IRAN,ISL.REP	IR -2	BUSHEHR-2	PWR	V-528 VVER-100	3012	1057	974	NPPDCO	JSC ASE	2019-9			
JAPAN	JP -66	OHMA	BWR	ABWR	3926	1383	1328	EPDC	H/G	2010-5			
	JP -65	SHIMANE-3	BWR	ABWR	3926	1373	1325	CHUGOKU	HITACHI	2006-10			
KOREA,REP.OF	KR -27	SHIN-HANUL-1	PWR	APR-1400	3983	1400	1340	KHNP	DHICKOPC	2012-7			
	KR -28	SHIN-HANUL-2	PWR	APR-1400	3983	1400	1340	KHNP	DHICKOPC	2013-6			
	KR -29	SHIN-KORI-5	PWR	APR-1400	3983	1400	1340	KHNP	DHICKOPC	2017-4			
	KR -30	SHIN-KORI-6	PWR	APR-1400	3983	1400	1340	KHNP	DHICKOPC	2018-9			
PAKISTAN	PK -6	KANUPP-2	PWR	ACP-1000	3060	1100	1014	PAEC	CZEC	2015-8	2021-2	2021-3	2021-8
	PK -7	KANUPP-3	PWR	ACP-1000	3060	1100	1014	PAEC	CZEC	2016-5	2021-2	2021-3	2021-5
RUSSIA	RU -170	BALTIC-1	PWR	VVER V-491	3200	1194	1109	REA	AEM	2012-2			
	RU -166	KURSK 2-1	PWR	VVER V-510K	3300	1255	1175	REA	AEM	2018-4		2022-6	2023-9
	RU -189	KURSK 2-2	PWR	VVER V-510K	3300	1255	1175	REA	AEM	2019-4		2023-12	2024-8
SLOVAKIA	SK -10	MOCHOVCE-3	PWR	VVER V-213	1375	471	440	SE	ŠKODA	1987-1	2021-8	2021-8	2021-10
	SK -11	MOCHOVCE-4	PWR	VVER V-213	1375	471	440	SE	ŠKODA	1987-1	2023-2	2023-3	2023-6
TURKEY	TR -1	AKKUYU-1	PWR	VVER V-509	3200	1200	1114	ANC	AEM	2018-4			
	TR -2	AKKUYU-2	PWR	VVER V-509	3200	1200	1114	ANC	AEM	2020-4			
UAE	AE -02	BARAKAH-2	PWR	APR-1400	3983	1400	1345	NAWAH	KEPCO	2013-4			
	AE -03	BARAKAH-3	PWR	APR-1400	3983	1400	1345	NAWAH	KEPCO	2014-9			
	AE -04	BARAKAH-4	PWR	APR-1400	3983	1400	1345	NAWAH	KEPCO	2015-7			
UK	GB -25A	HINKLEY POINT C-1	PWR	EPR-1750	4524	1720	1630	EDF-CGN	ORANO	2018-12			
	GB -25B	HINKLEY POINT C-2	PWR	EPR-1750	4524	1720	1630	EDF-CGN	ORANO	2019-12			
UKRAINE	UA -51	KHMELNITSKI-3	PWR	VVER	3132	1089	1035	NNEGC	JSC ASE	1986-3			
	UA -52	KHMELNITSKI-4	PWR	VVER	3132	1089	1035	NNEGC	JSC ASE	1987-2			
USA	US -5025	VOGTLE-3	PWR	AP-1000	3400	1250	1117	SOUTHERN	WH	2013-3			
	US -5026	VOGTLE-4	PWR	AP-1000	3400	1250	1117	SOUTHERN	WH	2013-11			

Note: Status as of 31 December 2020, 52 reactors (54435 MW(e)) were under construction.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
ARGENTINA	AR -1	ATUCHA-1	PHWR	PHWR KWU	1179	362	340	NASA	SIEMENS	1968-6	1974-3	1974-6	74.5	75.5	-
	AR -2	EMBALSE	PHWR	CANDU 6	2064	656	608	NASA	AECL	1974-4	1983-4	1984-1	78.6	78.9	-
	AR -3	ATUCHA-2	PHWR	PHWR KWU	2160	745	693	NASA	SIEMENS	1981-7	2014-6	2016-5	53.1	53.1	-
ARMENIA	AM -19	ARMENIAN-2	PWR	VVER V-270	1375	451	415	ANPPCJSC	FAEA	1975-7	1980-1	1980-5	65.6	67.7	-
BELARUS	BY -1	BELARUSIAN-1	PWR	VVER V-491	3200	1194	1110	BelNPP	JSC ASE	2013-11	2020-11		0	0	-
BELGIUM	BE -2	DOEL-1	PWR	WH 2LP	1311	454	445	EBL+EDF	ACECOWE	1969-7	1974-8	1975-2	83.4	84.2	-
	BE -3	TIHANGE-1	PWR	Framatome 3 lo	2873	1009	962	EBL	ACLF	1970-6	1975-3	1975-10	79.9	81.9	-
	BE -4	DOEL-2	PWR	WH 2LP	1311	454	445	EBL+EDF	ACECOWE	1971-9	1975-8	1975-12	80.9	81.7	-
	BE -5	DOEL-3	PWR	WH 3LP	3054	1056	1006	EBL+EDF	FRAMACEC	1975-1	1982-6	1982-10	78.5	79.5	-
	BE -6	TIHANGE-2	PWR	WH 3LP	3064	1055	1008	EBL	FRAMACEC	1976-4	1982-10	1983-6	79.7	80.6	-
	BE -7	DOEL-4	PWR	WH 3LP	2988	1090	1038	EBL+EDF	ACECOWE	1978-12	1985-4	1985-7	83.3	84	-
	BE -8	TIHANGE-3	PWR	WH 3LP	3000	1089	1038	EBL	ACECOWE	1978-11	1985-6	1985-9	85.9	87.3	-
BRAZIL	BR -1	ANGRA-1	PWR	WH 2LP	1882	640	609	ELETROBR	WH	1971-5	1982-4	1985-1	62.9	67.8	-
	BR -2	ANGRA-2	PWR	PRE KONVOI	3764	1350	1275	ELETROBR	KWU	1976-1	2000-7	2001-2	87	88.2	-
BULGARIA	BG -5	KOZLODUY-5	PWR	VVER V-320	3000	1000	1003	KOZNPP	AEE	1980-7	1987-11	1988-12	72.8	74.9	DH
	BG -6	KOZLODUY-6	PWR	VVER V-320	3120	1040	1003	KOZNPP	AEE	1982-4	1991-8	1993-12	78.7	80.5	DH
CANADA	CA -10	BRUCE-3	PHWR	CANDU 750A	2550	830	770	BRUCEPOW	OH/AECL	1972-7	1977-12	1978-2	74.8	75.3	-
	CA -11	BRUCE-4	PHWR	CANDU 750A	2550	830	769	BRUCEPOW	OH/AECL	1972-9	1978-12	1979-1	74	74.6	-
	CA -13	PICKERING-5	PHWR	CANDU 500B	1744	540	516	OPG	OH/AECL	1974-11	1982-12	1983-5	74.7	75.4	-
	CA -14	PICKERING-6	PHWR	CANDU 500B	1744	540	516	OPG	OH/AECL	1975-10	1983-11	1984-2	78.2	78.9	-
	CA -15	PICKERING-7	PHWR	CANDU 500B	1744	540	516	OPG	OH/AECL	1976-3	1984-11	1985-1	78.4	79	-
	CA -16	PICKERING-8	PHWR	CANDU 500B	1744	540	516	OPG	OH/AECL	1976-9	1986-1	1986-2	76.1	76.8	-
	CA -17	POINT LEPREAU	PHWR	CANDU 6	2180	705	660	NBEPC	AECL	1975-5	1982-9	1983-2	72.3	73.1	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
CANADA	CA -18	BRUCE-5	PHWR	CANDU 750B	2832	872	817	BRUCEPOW	OH/AECL	1978-6	1984-12	1985-3	85.3	85.8	-
	CA -19	BRUCE-6	PHWR	CANDU 750B	2690	891	817	BRUCEPOW	OH/AECL	1978-1	1984-6	1984-9	81.2	81.8	-
	CA -20	BRUCE-7	PHWR	CANDU 750B	2832	872	817	BRUCEPOW	OH/AECL	1979-5	1986-2	1986-4	85.8	86.5	-
	CA -21	BRUCE-8	PHWR	CANDU 750B	2690	872	817	BRUCEPOW	OH/AECL	1979-8	1987-3	1987-5	83.6	84.5	-
	CA -22	DARLINGTON-1	PHWR	CANDU 850	2776	934	878	OPG	OH/AECL	1982-4	1990-12	1992-11	85.5	86.5	-
	CA -23	DARLINGTON-2	PHWR	CANDU 850	2776	934	878	OPG	OH/AECL	1981-9	1990-1	1990-10	70.5	71.4	-
	CA -24	DARLINGTON-3	PHWR	CANDU 850	2776	934	878	OPG	OH/AECL	1984-9	1992-12	1993-2	85.3	86.1	-
	CA -25	DARLINGTON-4	PHWR	CANDU 850	2776	934	878	OPG	OH/AECL	1985-7	1993-4	1993-6	85.9	86.6	-
	CA -4	PICKERING-1	PHWR	CANDU 500A	1744	542	515	OPG	OH/AECL	1966-6	1971-4	1971-7	67.4	67.6	-
	CA -7	PICKERING-4	PHWR	CANDU 500A	1744	542	515	OPG	OH/AECL	1968-5	1973-5	1973-6	67.5	67.9	-
	CA -8	BRUCE-1	PHWR	CANDU 791	2620	830	774	BRUCEPOW	OH/AECL	1971-6	1977-1	1977-9	72.1	72.6	-
	CA -9	BRUCE-2	PHWR	CANDU 791	2620	830	777	BRUCEPOW	OH/AECL	1970-12	1976-9	1977-9	68.8	69.3	-
CHINA	CN -1	QINSHAN-1	PWR	CNP-300	966	330	308	CNNO	CNNC	1985-3	1991-12	1994-4	82	83	-
	CN -10	TIANWAN-1	PWR	VVER V-428	3000	1060	990	JNPC	IZ	1999-10	2006-5	2007-5	86.6	86.8	-
	CN -11	TIANWAN-2	PWR	VVER V-428	3000	1060	990	JNPC	IZ	2000-9	2007-5	2007-8	89.2	89.3	-
	CN -12	LING AO-3	PWR	CPR-1000	2905	1086	1007	DNMC	DEC	2005-12	2010-7	2010-9	88.1	88.3	-
	CN -13	LING AO-4	PWR	CPR-1000	2905	1086	1007	DNMC	DEC	2006-6	2011-5	2011-8	90.1	90.4	-
	CN -14	QINSHAN 2-3	PWR	CNP-600	1930	660	619	NPQJVC	CNNC	2006-4	2010-8	2010-10	90.9	91	-
	CN -15	QINSHAN 2-4	PWR	CNP-600	1930	660	619	NPQJVC	CNNC	2007-1	2011-11	2011-12	91.4	91.5	-
	CN -16	HONGYANHE-1	PWR	CPR-1000	2905	1119	1061	LHNPC	DEC	2007-8	2013-2	2013-6	87.7	88.6	-
	CN -17	HONGYANHE-2	PWR	CPR-1000	2905	1119	1061	LHNPC	DEC	2008-3	2013-11	2014-5	85.6	86.6	-
	CN -18	NINGDE-1	PWR	CPR-1000	2905	1089	1018	NDNP	DEC	2008-2	2012-12	2013-4	87.3	87.4	-
	CN -19	NINGDE-2	PWR	CPR-1000	2905	1089	1018	NDNP	SHE	2008-11	2014-1	2014-5	91.8	91.8	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
CHINA	CN -2	DAYA BAY-1	PWR	M310	2905	984	944	DNMC	FRAM	1987-8	1993-8	1994-2	86.5	88.9	-
	CN -20	FUQING-1	PWR	CNP-1000	2905	1089	1000	FQNP	NPIC	2008-11	2014-8	2014-11	89.7	89.9	-
	CN -21	FUQING-2	PWR	CNP-1000	2905	1089	1000	FQNP	NPIC	2009-6	2015-8	2015-10	89	89.2	-
	CN -22	YANGJIANG-1	PWR	CPR-1000	2905	1086	1000	YJNPC	CFHI	2008-12	2013-12	2014-3	90.6	90.7	-
	CN -23	YANGJIANG-2	PWR	CPR-1000	2905	1086	1000	YJNPC	CFHI	2009-6	2015-3	2015-6	89.9	90	-
	CN -24	FANGJIASHAN-1	PWR	CPR-1000	2905	1089	1012	QNPC	NPIC	2008-12	2014-11	2014-12	90.6	91.1	-
	CN -25	FANGJIASHAN-2	PWR	CPR-1000	2905	1089	1012	QNPC	NPIC	2009-7	2015-1	2015-2	92.3	92.6	-
	CN -26	HONGYANHE-3	PWR	CPR-1000	2905	1119	1061	LHNPC	DEC	2009-3	2015-3	2015-8	89.9	91.2	-
	CN -27	HONGYANHE-4	PWR	CPR-1000	2905	1119	1061	LHNPC	DEC	2009-8	2016-4	2016-6	89.2	90.4	-
	CN -28	SANMEN-1	PWR	AP-1000	3400	1251	1157	SMNPC	WH/MHI	2009-4	2018-6	2018-9	90.4	91.3	-
	CN -29	SANMEN-2	PWR	AP-1000	3400	1251	1157	SMNPC	WH/MHI	2009-12	2018-8	2018-11	55.6	56.9	-
	CN -3	DAYA BAY-2	PWR	M310	2905	984	944	DNMC	FRAM	1988-4	1994-2	1994-5	86.1	87.2	-
	CN -30	HAIYANG-1	PWR	AP-1000	3415	1250	1170	SDNPC	WH	2009-9	2018-8	2018-10	91.3	92	-
	CN -31	HAIYANG-2	PWR	AP-1000	3415	1250	1170	SDNPC	WH	2010-6	2018-10	2019-1	93.4	94.2	-
	CN -32	TAISHAN-1	PWR	EPR-1750	4590	1750	1660	TNPJVC	ORANO	2009-11	2018-6	2018-12	80.8	81.3	-
	CN -33	TAISHAN-2	PWR	EPR-1750	4590	1750	1660	TNPJVC	ORANO	2010-4	2019-6		0	0	-
	CN -34	NINGDE-3	PWR	CPR-1000	2905	1089	1018	NDNP	CFHI	2010-1	2015-3	2015-6	91.5	91.5	-
	CN -35	NINGDE-4	PWR	CPR-1000	2905	1089	1018	NDNP	CFHI	2010-9	2016-3	2016-7	91.9	91.9	-
	CN -36	CHANGJIANG-1	PWR	CNP-600	1930	650	601	HNPC	DEC	2010-4	2015-11	2015-12	88.1	88.1	-
	CN -37	CHANGJIANG-2	PWR	CNP-600	1930	650	601	HNPC	DEC	2010-11	2016-6	2016-8	88.5	88.5	-
	CN -38	FANGCHENGGANG-1	PWR	CPR-1000	2905	1086	1000	GFNPC	DEC	2010-7	2015-10	2016-1	91.5	91.6	-
	CN -39	FANGCHENGGANG-2	PWR	CPR-1000	2905	1086	1000	GFNPC	DEC	2010-12	2016-7	2016-10	91.6	91.6	-
	CN -4	QINSHAN 2-1	PWR	CNP-600	1930	650	610	NPQJVC	CNNC	1996-6	2002-2	2002-4	84	84	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
CHINA	CN -40	YANGJIANG-3	PWR	CPR-1000	2905	1086	1000	YJNPC	CFHI	2010-11	2015-10	2016-1	91	91.3	-
	CN -41	YANGJIANG-4	PWR	CPR-1000	2905	1086	1000	YJNPC	CFHI	2012-11	2017-1	2017-3	90.7	90.9	-
	CN -42	FUQING-3	PWR	CNP-1000	2905	1089	1000	FQNP	NPIC	2010-12	2016-9	2016-10	89.1	89.4	-
	CN -43	FUQING-4	PWR	CNP-1000	2905	1089	1000	FQNP	NPIC	2012-11	2017-7	2017-9	88	88.3	-
	CN -45	TIANWAN-3	PWR	VVER V-428M	3000	1126	1045	JNPC	IZ	2012-12	2017-12	2018-2	87.5	87.9	-
	CN -46	TIANWAN-4	PWR	VVER V-428M	3000	1126	1045	JNPC	IZ	2013-9	2018-10	2018-12	89.9	90	-
	CN -47	YANGJIANG-5	PWR	ACPR-1000	2905	1086	1000	YJNPC	CFHI	2013-9	2018-5	2018-7	90.6	90.9	-
	CN -48	YANGJIANG-6	PWR	ACPR-1000	2905	1086	1000	YJNPC	CFHI	2013-12	2019-6	2019-7	87.6	87.6	-
	CN -5	QINSHAN 2-2	PWR	CNP-600	1930	650	610	NPQJVC	CNNC	1997-4	2004-3	2004-5	88.3	88.4	-
	CN -51	FUQING-5	PWR	HPR1000	3060	1150	1000	FQNP	NPIC	2015-5	2020-11	2021-1	0	0	-
	CN -53	TIANWAN-5	PWR	CNP-1000	2905	1118	1000	JNPC	SHE	2015-12	2020-8	2020-9	93.3	93.3	-
	CN -6	LING AO-1	PWR	M310	2905	990	950	DNMC	FRAM	1997-5	2002-2	2002-5	89.9	90.2	-
	CN -7	LING AO-2	PWR	M310	2905	990	950	DNMC	FRAM	1997-11	2002-9	2003-1	90.1	90.3	-
	CN -8	QINSHAN 3-1	PHWR	CANDU 6	2064	728	677	TQNPC	AECL	1998-6	2002-11	2002-12	89.7	90.2	-
	CN -9	QINSHAN 3-2	PHWR	CANDU 6	2064	728	677	TQNPC	AECL	1998-9	2003-6	2003-7	91	91.4	-
	CN -901	CEFR	FBR	BN-20	65	25	20	CIAE	IZ	2000-5	2011-7		0	0	-
CZECH REP.	CZ -23	TEMELIN-1	PWR	VVER V-320	3120	1082	1027	CEZ	ŠKODA	1987-2	2000-12	2002-6	75.3	75.6	DH
	CZ -24	TEMELIN-2	PWR	VVER V-320	3120	1082	1029	CEZ	ŠKODA	1987-2	2002-12	2003-4	77.5	77.7	DH
	CZ -4	DUKOVANY-1	PWR	VVER V-213	1444	500	468	CEZ	ŠKODA	1979-1	1985-2	1985-5	83	83.9	-
	CZ -5	DUKOVANY-2	PWR	VVER V-213	1444	500	471	CEZ	ŠKODA	1979-1	1986-1	1986-3	81.6	82.5	-
	CZ -8	DUKOVANY-3	PWR	VVER V-213	1444	500	468	CEZ	ŠKODA	1979-3	1986-11	1986-12	81.2	82.7	-
	CZ -9	DUKOVANY-4	PWR	VVER V-213	1444	500	471	CEZ	ŠKODA	1979-3	1987-6	1987-7	83.5	84.4	-
FINLAND	FI -1	LOVIISA-1	PWR	VVER V-213	1500	531	507	FORTUMPH	AEE	1971-5	1977-2	1977-5	87.9	88.5	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
FINLAND	FI -2	LOVIISA-2	PWR	VVER V-213	1500	531	507	FORTUMPH	AEE	1972-8	1980-11	1981-1	89.4	90.2	-
	FI -3	OLKILUOTO-1	BWR	AA-III, BWR-25	2500	920	890	TVO	ASEASTAL	1974-2	1978-9	1979-10	92.7	93.2	-
	FI -4	OLKILUOTO-2	BWR	AA-III, BWR-25	2500	920	890	TVO	ASEASTAL	1975-11	1980-2	1982-7	93.1	93.7	-
FRANCE	FR -13	BUGEY-2	PWR	CP0	2785	945	910	EDF	FRAM	1972-11	1978-5	1979-3	71.9	74.2	-
	FR -14	BUGEY-3	PWR	CP0	2785	945	910	EDF	FRAM	1973-9	1978-9	1979-3	70.7	73.2	-
	FR -15	BUGEY-4	PWR	CP0	2785	917	880	EDF	FRAM	1974-6	1979-3	1979-7	74.9	76.9	-
	FR -16	BUGEY-5	PWR	CP0	2785	917	880	EDF	FRAM	1974-7	1979-7	1980-1	72.9	75.2	-
	FR -17	ST. LAURENT B-1	PWR	CP2	2785	956	915	EDF	FRAM	1976-5	1981-1	1983-8	75.9	78.1	-
	FR -18	TRICASTIN-1	PWR	CP1	2785	955	915	EDF	FRAM	1974-11	1980-5	1980-12	75.1	77.9	-
	FR -19	TRICASTIN-2	PWR	CP1	2785	955	915	EDF	FRAM	1974-12	1980-8	1980-12	75.6	79.1	-
	FR -20	GRAVELINES-1	PWR	CP1	2785	951	910	EDF	FRAM	1975-2	1980-3	1980-11	74.5	76.4	-
	FR -21	GRAVELINES-2	PWR	CP1	2785	951	910	EDF	FRAM	1975-3	1980-8	1980-12	77.2	79.5	-
	FR -22	DAMPIERRE-1	PWR	CP1	2785	937	890	EDF	FRAM	1975-2	1980-3	1980-9	76	78.5	-
	FR -23	ST. LAURENT B-2	PWR	CP2	2785	956	915	EDF	FRAM	1976-7	1981-6	1983-8	75.3	77.7	-
	FR -25	TRICASTIN-3	PWR	CP1	2785	955	915	EDF	FRAM	1975-4	1981-2	1981-5	76.7	80.3	-
	FR -26	TRICASTIN-4	PWR	CP1	2785	955	915	EDF	FRAM	1975-5	1981-6	1981-11	78.6	81.2	-
	FR -27	GRAVELINES-3	PWR	CP1	2785	951	910	EDF	FRAM	1975-12	1980-12	1981-6	77.3	78.8	-
	FR -28	GRAVELINES-4	PWR	CP1	2785	951	910	EDF	FRAM	1976-4	1981-6	1981-10	78.7	80.2	-
	FR -29	DAMPIERRE-2	PWR	CP1	2785	937	890	EDF	FRAM	1975-4	1980-12	1981-2	77	78.7	-
	FR -30	DAMPIERRE-3	PWR	CP1	2785	937	890	EDF	FRAM	1975-9	1981-1	1981-5	78	79.8	-
	FR -31	DAMPIERRE-4	PWR	CP1	2785	937	890	EDF	FRAM	1975-12	1981-8	1981-11	75.5	77.9	-
	FR -32	BLAYAIS-1	PWR	CP1	2785	951	910	EDF	FRAM	1977-1	1981-6	1981-12	76.5	79.4	-
	FR -33	BLAYAIS-2	PWR	CP1	2785	951	910	EDF	FRAM	1977-1	1982-7	1983-2	80.4	82.5	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
FRANCE	FR -34	BLAYAIS-3	PWR	CP1	2785	951	910	EDF	FRAM	1978-4	1983-8	1983-11	78.7	80.6	-
	FR -35	BLAYAIS-4	PWR	CP1	2785	951	910	EDF	FRAM	1978-4	1983-5	1983-10	78.8	81.2	-
	FR -36	PALUEL-1	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1977-8	1984-6	1985-12	76.3	79	-
	FR -37	PALUEL-2	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1978-1	1984-9	1985-12	66.9	68.9	-
	FR -38	PALUEL-3	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1979-2	1985-9	1986-2	71.6	74.1	-
	FR -39	PALUEL-4	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1980-2	1986-4	1986-6	76.2	78.4	-
	FR -40	CHINON B-1	PWR	CP2	2785	954	905	EDF	FRAM	1977-3	1982-11	1984-2	76.4	78.3	-
	FR -41	CHINON B-2	PWR	CP2	2785	954	905	EDF	FRAM	1977-3	1983-11	1984-8	76.7	78.7	-
	FR -42	CRUAS-1	PWR	CP2	2785	956	915	EDF	FRAM	1978-8	1983-4	1984-4	76.8	79.3	-
	FR -43	CRUAS-2	PWR	CP2	2785	956	915	EDF	FRAM	1978-11	1984-9	1985-4	77.3	80.4	-
	FR -44	CRUAS-3	PWR	CP2	2785	956	915	EDF	FRAM	1979-4	1984-5	1984-9	77	80.5	-
	FR -45	CRUAS-4	PWR	CP2	2785	956	915	EDF	FRAM	1979-10	1984-10	1985-2	75.7	78.2	-
	FR -46	FLAMANVILLE-1	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1979-12	1985-12	1986-12	69.8	72.5	-
	FR -47	FLAMANVILLE-2	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1980-5	1986-7	1987-3	73.1	75.1	-
	FR -48	ST. ALBAN-1	PWR	P4 REP 1300	3817	1381	1335	EDF	FRAM	1979-1	1985-8	1986-5	74.7	77.1	-
	FR -49	ST. ALBAN-2	PWR	P4 REP 1300	3817	1381	1335	EDF	FRAM	1979-7	1986-7	1987-3	75.4	78.2	-
	FR -50	CATTENOM-1	PWR	P4 REP 1300	3817	1362	1300	EDF	FRAM	1979-10	1986-11	1987-4	73.3	75.1	-
	FR -51	GRAVELINES-5	PWR	CP1	2785	951	910	EDF	FRAM	1979-10	1984-8	1985-1	76.6	78.3	-
	FR -52	GRAVELINES-6	PWR	CP1	2785	951	910	EDF	FRAM	1979-10	1985-8	1985-10	78.7	80.3	-
	FR -53	CATTENOM-2	PWR	P4 REP 1300	3817	1362	1300	EDF	FRAM	1980-7	1987-9	1988-2	77	79.3	-
	FR -54	BELLEVILLE-1	PWR	P4 REP 1300	3817	1363	1310	EDF	FRAM	1980-5	1987-10	1988-6	75.5	77	-
	FR -55	BELLEVILLE-2	PWR	P4 REP 1300	3817	1363	1310	EDF	FRAM	1980-8	1988-7	1989-1	77.1	78.9	-
	FR -56	CHINON B-3	PWR	CP2	2785	954	905	EDF	FRAM	1980-10	1986-10	1987-3	77.9	79.6	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
FRANCE	FR -57	CHINON B-4	PWR	CP2	2785	954	905	EDF	FRAM	1981-2	1987-11	1988-4	78.3	80.2	-
	FR -58	NOGENT-1	PWR	P4 REP 1300	3817	1363	1310	EDF	FRAM	1981-5	1987-10	1988-2	77.6	79.6	-
	FR -59	NOGENT-2	PWR	P4 REP 1300	3817	1363	1310	EDF	FRAM	1982-1	1988-12	1989-5	79.9	82.2	-
	FR -60	CATTENOM-3	PWR	P4 REP 1300	3817	1362	1300	EDF	FRAM	1982-6	1990-7	1991-2	79.2	81.4	-
	FR -61	GOLFECH-1	PWR	P4 REP 1300	3817	1363	1310	EDF	FRAM	1982-11	1990-6	1991-2	82.5	85.4	-
	FR -62	CHOOZ B-1	PWR	N4 REP 1450	4270	1560	1500	EDF	FRAM	1984-1	1996-8	2000-5	78	81.1	-
	FR -63	PENLY-1	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1982-9	1990-5	1990-12	80.7	82.1	-
	FR -64	PENLY-2	PWR	P4 REP 1300	3817	1382	1330	EDF	FRAM	1984-8	1992-2	1992-11	82.3	83.6	-
	FR -65	CATTENOM-4	PWR	P4 REP 1300	3817	1362	1300	EDF	FRAM	1983-9	1991-5	1992-1	81.3	83.8	-
	FR -68	GOLFECH-2	PWR	P4 REP 1300	3817	1363	1310	EDF	FRAM	1984-10	1993-6	1994-3	83.9	85.6	-
	FR -70	CHOOZ B-2	PWR	N4 REP 1450	4270	1560	1500	EDF	FRAM	1985-12	1997-4	2000-9	77.9	83.5	-
	FR -72	CIVAUX-1	PWR	N4 REP 1450	4270	1561	1495	EDF	FRAM	1988-10	1997-12	2002-1	75.9	78.8	-
	FR -73	CIVAUX-2	PWR	N4 REP 1450	4270	1561	1495	EDF	FRAM	1991-4	1999-12	2002-4	78.4	83.4	-
GERMANY	DE -27	GROHNDE	PWR	PWR	3900	1430	1360	PElektra	KWU	1976-6	1984-9	1985-2	90.3	90.8	-
	DE -28	GUNDREMMINGEN-C	BWR	BWR-72	3840	1344	1288	KGG	KWU	1976-7	1984-11	1985-1	86.9	87.4	-
	DE -31	ISAR-2	PWR	Konvoi	3950	1485	1410	PElektra	KWU	1982-9	1988-1	1988-4	92.3	92.6	-
	DE -32	BROKDORF	PWR	PWR	3900	1480	1410	PElektra	KWU	1976-1	1986-10	1986-12	88.4	88.6	-
	DE -33	EMSLAND	PWR	Konvoi	3850	1406	1335	KLE	KWU	1982-8	1988-4	1988-6	93.3	93.5	-
	DE -44	NECKARWESTHEIM-2	PWR	Konvoi	3850	1400	1310	EnKK	KWU	1982-11	1989-1	1989-4	92.3	92.6	-
HUNGARY	HU -1	PAKS-1	PWR	VVER V-213	1485	500	479	PAKS Zrt	AEE	1974-8	1982-12	1983-8	86.8	86.9	-
	HU -2	PAKS-2	PWR	VVER V-213	1485	500	477	PAKS Zrt	AEE	1974-8	1984-9	1984-11	82.8	83	DH
	HU -3	PAKS-3	PWR	VVER V-213	1485	500	473	PAKS Zrt	AEE	1979-10	1986-9	1986-12	87.1	87.5	DH
	HU -4	PAKS-4	PWR	VVER V-213	1485	500	473	PAKS Zrt	AEE	1979-10	1987-8	1987-11	88.3	88.6	DH

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
INDIA	IN -1	TARAPUR-1	BWR	BWR-1 (Mark 2)	530	160	150	NPCIL	GE	1964-10	1969-4	1969-10	66.3	67	-
	IN -10	KAKRAPAR-2	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1985-4	1995-3	1995-9	69.8	78.8	-
	IN -11	RAJASTHAN-3	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1990-2	2000-3	2000-6	80.7	90.6	PH
	IN -12	RAJASTHAN-4	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1990-10	2000-11	2000-12	82.1	91.6	PH
	IN -13	KAIGA-1	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1989-9	2000-10	2000-11	77.2	92.1	-
	IN -14	KAIGA-2	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1989-12	1999-12	2000-3	76.2	90.8	-
	IN -15	KAIGA-3	PHWR	Horizontal Pre	800	220	202	NPCIL	NPCIL	2002-3	2007-4	2007-5	70.8	83.2	-
	IN -16	KAIGA-4	PHWR	Horizontal Pre	800	220	202	NPCIL	NPCIL	2002-5	2011-1	2011-1	84.9	91	-
	IN -19	RAJASTHAN-5	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	2002-9	2009-12	2010-2	91.7	91.9	-
	IN -2	TARAPUR-2	BWR	BWR-1 (Mark 2)	530	160	150	NPCIL	GE	1964-10	1969-5	1969-10	67	67.8	-
	IN -20	RAJASTHAN-6	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	2003-1	2010-3	2010-3	79.9	80.1	-
	IN -23	TARAPUR-3	PHWR	Horizontal Pre	1730	540	490	NPCIL	NPCIL	2000-5	2006-6	2006-8	78.4	88.4	-
	IN -24	TARAPUR-4	PHWR	Horizontal Pre	1730	540	490	NPCIL	NPCIL	2000-3	2005-6	2005-9	71.5	84.9	-
	IN -25	KUDANKULAM-1	PWR	VVER V-412	3000	1000	932	NPCIL	MAEP	2002-3	2013-10	2014-12	53.6	55.3	-
	IN -26	KUDANKULAM-2	PWR	VVER V-412	3000	1000	932	NPCIL	MAEP	2002-7	2016-8	2017-3	52.6	52.6	-
	IN -3	RAJASTHAN-1	PHWR	Horizontal Pre	346	100	90	NPCIL	AECL	1965-8	1972-11	1973-12	20.2	21	PH
	IN -4	RAJASTHAN-2	PHWR	Horizontal Pre	693	200	187	NPCIL	AECL/DAE	1968-4	1980-11	1981-4	59.2	62.6	PH
	IN -5	MADRAS-1	PHWR	Horizontal Pre	801	220	205	NPCIL	NPCIL	1971-1	1983-7	1984-1	52.8	62.1	DS
	IN -6	MADRAS-2	PHWR	Horizontal Pre	801	220	205	NPCIL	NPCIL	1972-10	1985-9	1986-3	62.8	74.2	DS
	IN -7	NARORA-1	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1976-12	1989-7	1991-1	62.5	73.5	-
	IN -8	NARORA-2	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1977-11	1992-1	1992-7	64.7	74.9	-
	IN -9	KAKRAPAR-1	PHWR	Horizontal Pre	801	220	202	NPCIL	NPCIL	1984-12	1992-11	1993-5	61.1	66.1	-
IRAN,ISL.REP	IR -1	BUSHEHR-1	PWR	VVER V-446	3000	1000	915	NPPDCO	JSC ASE	1975-5	2011-9	2013-9	71.7	72.1	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DS desalination, PH process heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
JAPAN	JP -13	TAKAHAMA-2	PWR	M (3-loop)	2440	826	780	KEPCO	MHI	1971-3	1975-1	1975-11	54.9	55	-
	JP -14	MIHAMA-3	PWR	M (3-loop)	2440	826	780	KEPCO	MHI	1972-8	1976-2	1976-12	55.4	55.4	-
	JP -21	TOKAI-2	BWR	BWR-5	3293	1100	1060	JAPCO	GE	1973-10	1978-3	1978-11	55.7	56.3	-
	JP -28	SENDAI-1	PWR	M (3-loop)	2660	890	846	KYUSHU	MHI	1979-12	1983-9	1984-7	71.2	71.2	-
	JP -29	TAKAHAMA-3	PWR	M (3-loop)	2660	870	830	KEPCO	MHI	1980-12	1984-5	1985-1	70.8	70.8	DS
	JP -30	TAKAHAMA-4	PWR	M (3-loop)	2660	870	830	KEPCO	MHI	1981-3	1984-11	1985-6	72.1	72.2	DS
	JP -33	KASHIWAZAKI KARIWA-1	BWR	BWR-5	3293	1100	1067	TEPCO	TOSHIBA	1980-6	1985-2	1985-9	48.3	49.1	-
	JP -34	TSURUGA-2	PWR	M (4-loop)	3411	1160	1108	JAPCO	MHI	1982-11	1986-6	1987-2	55.6	55.7	-
	JP -36	HAMAOKA-3	BWR	BWR-5	3293	1100	1056	CHUBU	TOSHIBA	1983-4	1987-1	1987-8	54.7	54.8	-
	JP -37	SENDAI-2	PWR	M (3-loop)	2660	890	846	KYUSHU	MHI	1981-10	1985-4	1985-11	72.3	72.3	-
	JP -39	KASHIWAZAKI KARIWA-2	BWR	BWR-5	3293	1100	1067	TEPCO	TOSHIBA	1985-11	1990-2	1990-9	41.6	41.6	-
	JP -40	KASHIWAZAKI KARIWA-5	BWR	BWR-5	3293	1100	1067	TEPCO	HITACHI	1985-6	1989-9	1990-4	47.3	49	-
	JP -41	SHIMANE-2	BWR	BWR-5	2436	820	789	CHUGOKU	HITACHI	1985-2	1988-7	1989-2	57.8	57.9	-
	JP -43	TOMARI-1	PWR	M (2-loop)	1650	579	550	HEPCO	MHI	1985-4	1988-12	1989-6	58.8	58.8	-
	JP -44	TOMARI-2	PWR	M (2-loop)	1650	579	550	HEPCO	MHI	1985-6	1990-8	1991-4	56.9	56.9	-
	JP -45	GENKAI-3	PWR	M (4-loop)	3423	1180	1127	KYUSHU	MHI	1988-6	1993-6	1994-3	61.9	61.9	DS
	JP -46	GENKAI-4	PWR	M (4-loop)	3423	1180	1127	KYUSHU	MHI	1992-7	1996-11	1997-7	62.6	62.6	DS
	JP -47	IKATA-3	PWR	M (3-loop)	2660	890	846	SHIKOKU	MHI	1990-10	1994-3	1994-12	66.3	66.3	DS
	JP -48	SHIKA-1	BWR	BWR-5	1593	540	505	HOKURIKU	HITACHI	1989-7	1993-1	1993-7	45.7	45.7	-
	JP -49	HAMAOKA-4	BWR	BWR-5	3293	1137	1092	CHUBU	TOSHIBA	1989-10	1993-1	1993-9	51.7	52.1	-
	JP -50	OHI-3	PWR	M (4-loop)	3423	1180	1127	KEPCO	MHI	1987-10	1991-6	1991-12	65.1	65.1	DS
	JP -51	OHI-4	PWR	M (4-loop)	3423	1180	1127	KEPCO	MHI	1988-6	1992-6	1993-2	68.6	68.6	DS
	JP -52	KASHIWAZAKI KARIWA-3	BWR	BWR-5	3293	1100	1067	TEPCO	TOSHIBA	1989-3	1992-12	1993-8	38.4	39	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DS desalination.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
JAPAN	JP -53	KASHIWAZAKI KARIWA-4	BWR	BWR-5	3293	1100	1067	TEPCO	HITACHI	1990-3	1993-12	1994-8	36.6	38.4	-
	JP -54	ONAGAWA-2	BWR	BWR-5	2436	825	796	TOHOKU	TOSHIBA	1991-4	1994-12	1995-7	44.8	48.3	-
	JP -55	KASHIWAZAKI KARIWA-6	BWR	ABWR	3926	1356	1315	TEPCO	TOSHIBA	1992-11	1996-1	1996-11	46.1	47.8	-
	JP -56	KASHIWAZAKI KARIWA-7	BWR	ABWR	3926	1356	1315	TEPCO	HITACHI	1993-7	1996-12	1997-7	41.7	43.3	-
	JP -57	ONAGAWA-3	BWR	BWR-5	2436	825	796	TOHOKU	TOSHIBA	1998-1	2001-5	2002-1	32.3	35.6	-
	JP -58	HIGASHI DORI-1 (TOHOKU)	BWR	BWR-5	3293	1100	1067	TOHOKU	TOSHIBA	2000-11	2005-3	2005-12	28.3	28.4	-
	JP -59	SHIKA-2	BWR	ABWR	3926	1206	1108	HOKURIKU	HITACHI	2001-8	2005-7	2006-3	17.4	17.4	-
	JP -60	HAMAOKA-5	BWR	ABWR	3926	1380	1325	CHUBU	TOSHIBA	2000-7	2004-4	2005-1	18.4	21.9	-
	JP -64	TOMARI-3	PWR	M (3-loop)	2660	912	866	HEPCO	MHI	2004-11	2009-3	2009-12	19.7	19.7	-
	JP -8	TAKAHAMA-1	PWR	M (3-loop)	2440	826	780	KEPCO	WH/MHI	1970-4	1974-3	1974-11	54.5	54.5	-
KOREA,REP.OF	KR -10	HANUL-2	PWR	France CPI	2775	1010	967	KHNP	FRAM	1983-7	1989-4	1989-9	86.8	87	-
	KR -11	HANBIT-3	PWR	OPR-1000	2825	1039	986	KHNP	DHICKAEC	1989-12	1994-10	1995-3	77.5	77.7	-
	KR -12	HANBIT-4	PWR	OPR-1000	2825	1022	970	KHNP	DHICKAEC	1990-5	1995-7	1996-1	75.7	75.9	-
	KR -13	HANUL-3	PWR	OPR-1000	2825	1051	997	KHNP	DHICKOPC	1993-7	1998-1	1998-8	85.8	86	-
	KR -14	HANUL-4	PWR	OPR-1000	2825	1052	999	KHNP	DHICKOPC	1993-11	1998-12	1999-12	80.8	80.9	-
	KR -15	WOLSONG-3	PHWR	CANDU 6	2061	630	627	KHNP	AECL/DHI	1994-3	1998-3	1998-7	85.3	86.6	-
	KR -16	WOLSONG-4	PHWR	CANDU 6	2061	597	600	KHNP	AECL/DHI	1994-7	1999-5	1999-10	90.6	91.4	-
	KR -17	HANBIT-5	PWR	OPR-1000	2825	1050	992	KHNP	DHICKOPC	1997-6	2001-12	2002-5	84	84.2	-
	KR -18	HANBIT-6	PWR	OPR-1000	2825	1053	993	KHNP	DHICKOPC	1997-11	2002-9	2002-12	86.7	87	-
	KR -19	HANUL-5	PWR	OPR-1000	2825	1048	998	KHNP	DHICKOPC	1999-10	2003-12	2004-7	89.3	89.5	-
	KR -2	KORI-2	PWR	WH F	1882	681	640	KHNP	WH	1977-12	1983-4	1983-7	84.1	84.5	-
	KR -20	HANUL-6	PWR	OPR-1000	2825	1049	997	KHNP	DHICKOPC	2000-9	2005-1	2005-4	88.3	88.5	-
	KR -21	SHIN-KORI-1	PWR	OPR-1000	2825	1046	996	KHNP	DHICKOPC	2006-6	2010-8	2011-2	73.8	75	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
KOREA,REP.OF	KR -22	SHIN-KORI-2	PWR	OPR-1000	2825	1048	996	KHNP	DHICKOPC	2007-6	2012-1	2012-7	81.7	82.9	-
	KR -23	SHIN-WOLSONG-1	PWR	OPR-1000	2825	1048	997	KHNP	DHICKOPC	2007-11	2012-1	2012-7	82.5	82.7	-
	KR -24	SHIN-WOLSONG-2	PWR	OPR-1000	2825	1052	993	KHNP	DHICKOPC	2008-9	2015-2	2015-7	82.6	82.7	-
	KR -25	SHIN-KORI-3	PWR	APR-1400	3983	1488	1416	KHNP	DHICKOPC	2008-10	2016-1	2016-12	76.3	76.5	-
	KR -26	SHIN-KORI-4	PWR	APR-1400	3983	1494	1418	KHNP	DHICKOPC	2009-8	2019-4	2019-8	82.5	82.6	-
	KR -4	WOLSONG-2	PHWR	CANDU 6	2061	605	596	KHNP	AECL/DHI	1992-9	1997-4	1997-7	89.4	90.6	-
	KR -5	KORI-3	PWR	WH F	2912	1045	1011	KHNP	WH	1979-10	1985-1	1985-9	82.8	83.1	-
	KR -6	KORI-4	PWR	WH F	2912	1046	1012	KHNP	WH	1980-4	1985-12	1986-4	84.2	84.6	-
	KR -7	HANBIT-1	PWR	WH F	2787	1026	995	KHNP	WH	1981-6	1986-3	1986-8	84.6	84.8	-
	KR -8	HANBIT-2	PWR	WH F	2787	1026	988	KHNP	WH	1981-12	1986-11	1987-6	83	83.1	-
	KR -9	HANUL-1	PWR	France CPI	2775	1010	966	KHNP	FRAM	1983-1	1988-4	1988-9	85.3	85.5	-
MEXICO	MX -1	LAGUNA VERDE-1	BWR	BWR-5	2317	805	777	CFE	GE	1976-10	1989-4	1990-7	80	81.4	-
	MX -2	LAGUNA VERDE-2	BWR	BWR-5	2317	803	775	CFE	GE	1977-6	1994-11	1995-4	83.1	84.1	-
NETHERLANDS	NL -2	BORSSELE	PWR	KWU 2LP	1366	515	482	EPZ	S/KWU	1969-7	1973-7	1973-10	84.8	85.3	-
PAKISTAN	PK -1	KANUPP-1	PHWR	CANDU-137 MW	337	100	90	PAEC	CGE	1966-8	1971-10	1972-12	31.8	32.7	DS
	PK -2	CHASNUPP-1	PWR	CNP-300	999	325	300	PAEC	CNNC	1993-8	2000-6	2000-9	77.6	78	-
	PK -3	CHASNUPP-2	PWR	CNP-300	999	325	300	PAEC	CNNC	2005-12	2011-3	2011-5	85	85.3	-
	PK -4	CHASNUPP-3	PWR	CNP-300	999	340	315	PAEC	CNNC	2011-5	2016-10	2016-12	87.3	88.1	-
	PK -5	CHASNUPP-4	PWR	CNP-300	999	340	313	PAEC	CNNC	2011-12	2017-6	2017-9	89.8	90.5	-
ROMANIA	RO -1	CERNAVODA-1	PHWR	CANDU 6	2180	706	650	SNN	AECL	1983-3	1996-7	1996-12	89.6	90.7	DH
	RO -2	CERNAVODA-2	PHWR	CANDU 6	2180	705	650	SNN	AECL	1983-7	2007-8	2007-11	94.1	95	DH
RUSSIA	RU -11	NOVOVORONEZH-4	PWR	VVER V-179	1375	417	385	REA	AEM	1967-7	1972-12	1973-3	78	79.3	DH, PH
	RU -116	BELOYARSK-4	FBR	BN-800	2100	885	820	REA	AEM	2006-7	2015-12	2016-10	71.3	72.4	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating, DS desalination, PH process heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
RUSSIA	RU -12	KOLA-1	PWR	VVER V-230	1375	440	411	REA	AEM	1970-5	1973-6	1973-12	71.9	77.2	DH, PH
	RU -13	KOLA-2	PWR	VVER V-230	1375	440	411	REA	AEM	1970-5	1974-12	1975-2	72.8	77.3	DH, PH
	RU -142	BILIBINO-2	LWGR	EGP-6	62	12	11	REA	AEM	1970-1	1974-12	1975-2	72.7	81.5	DH
	RU -143	BILIBINO-3	LWGR	EGP-6	62	12	11	REA	AEM	1970-1	1975-12	1976-2	73	82	DH
	RU -144	BILIBINO-4	LWGR	EGP-6	62	12	11	REA	AEM	1970-1	1976-12	1977-1	71.6	80.1	DH
	RU -151	AKADEMIK LOMONOSOV-1	PWR	KLT-40S 'Float	150	35	32	REA	AEM	2007-4	2019-12	2020-5	90.4	90.4	-
	RU -152	AKADEMIK LOMONOSOV-2	PWR	KLT-40S 'Float	150	35	32	REA	AEM	2007-4	2019-12	2020-5	77.4	77.4	-
	RU -161	NOVOVORONEZH 2-1	PWR	VVER V-392M	3200	1180	1100	REA	AEM	2008-6	2016-8	2017-2	75.7	77.7	-
	RU -162	NOVOVORONEZH 2-2	PWR	VVER V-392M	3200	1181	1101	REA	AEM	2009-7	2019-5	2019-10	82.1	83.9	-
	RU -163	LENINGRAD 2-1	PWR	VVER V-491	3200	1188	1101	REA	AEM	2008-10	2018-3	2018-10	74.3	75	-
	RU -164	LENINGRAD 2-2	PWR	VVER V-491	3200	1188	1066	REA	AEM	2010-4	2020-10	2021-3	0	0	-
	RU -17	KURSK-1	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1972-6	1976-12	1977-10	63.8	65.5	DH, PH
	RU -20	NOVOVORONEZH-5	PWR	VVER V-187	3000	1000	950	REA	AEM	1974-3	1980-5	1981-2	66.5	67.3	DH, PH
	RU -21	BELOYARSK-3	FBR	BN-600	1470	600	560	REA	AEM	1969-1	1980-4	1981-11	75.7	76.3	DH, PH
	RU -22	KURSK-2	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1973-1	1979-1	1979-8	64	65.9	DH, PH
	RU -23	SMOLENSK-1	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1975-10	1982-12	1983-9	73.9	75.6	DH, PH
	RU -24	SMOLENSK-2	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1976-6	1985-5	1985-7	75.7	77.6	DH, PH
	RU -30	KALININ-1	PWR	VVER V-338	3000	1000	950	REA	AEM	1977-2	1984-5	1985-6	74.1	74.8	DH, PH
	RU -31	KALININ-2	PWR	VVER V-338	3000	1000	950	REA	AEM	1982-2	1986-12	1987-3	77.1	79.1	DH, PH
	RU -32	KOLA-3	PWR	VVER V-213	1375	440	411	REA	AEM	1977-4	1981-3	1982-12	76.4	82.4	DH, PH
	RU -33	KOLA-4	PWR	VVER V-213	1375	440	411	REA	AEM	1976-8	1984-10	1984-12	76.5	82.3	DH, PH
	RU -34	LENINGRAD-3	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1973-12	1979-12	1980-6	73.4	74.3	DH, PH
	RU -35	LENINGRAD-4	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1975-2	1981-2	1981-8	74.9	75.8	DH, PH

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating, PH process heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
RUSSIA	RU -36	KALININ-3	PWR	VVER V-320	3200	1000	950	REA	AEM	1985-10	2004-12	2005-11	84.3	84.4	DH, PH
	RU -37	KALININ-4	PWR	VVER V-320	3200	1000	950	REA	AEM	1986-8	2011-11	2012-12	87.3	87.3	DH, PH
	RU -38	KURSK-3	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1978-4	1983-10	1984-3	74	75.1	DH, PH
	RU -39	KURSK-4	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1981-5	1985-12	1986-2	77.5	78.5	DH, PH
	RU -59	ROSTOV-1	PWR	VVER V-320	3200	1000	950	REA	AEM	1981-9	2001-3	2001-12	88.1	88.4	-
	RU -62	ROSTOV-2	PWR	VVER V-320	3200	1000	950	REA	AEM	1983-5	2010-3	2010-12	89.3	89.6	-
	RU -63	ROSTOV-3	PWR	VVER V-320	3000	1000	950	REA	AEM	2009-9	2014-12	2015-9	84	85.2	-
	RU -64	ROSTOV-4	PWR	VVER V-320	3000	1030	979	REA	AEM	2010-6	2018-2	2018-9	91.9	93.6	-
	RU -67	SMOLENSK-3	LWGR	RBMK-1000	3200	1000	925	REA	AEM	1984-5	1990-1	1990-10	78.9	80.5	DH, PH
	RU -96	BALAKOVO-1	PWR	VVER V-320	3000	1000	950	REA	AEM	1980-12	1985-12	1986-5	74.2	76	DH, PH
	RU -97	BALAKOVO-2	PWR	VVER V-320	3000	1000	950	REA	AEM	1981-8	1987-10	1988-1	73.6	76	DH, PH
	RU -98	BALAKOVO-3	PWR	VVER V-320	3000	1000	950	REA	AEM	1982-11	1988-12	1989-4	76.2	79.1	DH, PH
	RU -99	BALAKOVO-4	PWR	VVER V-320	3200	1000	950	REA	AEM	1984-4	1993-4	1993-12	80.5	83.7	DH, PH
SLOVAKIA	SK -13	BOHUNICE-3	PWR	VVER V-213	1471	500	466	SE	ŠKODA	1976-12	1984-8	1985-2	81.4	84.7	DH, PH
	SK -14	BOHUNICE-4	PWR	VVER V-213	1471	500	466	SE	ŠKODA	1976-12	1985-8	1985-12	82.4	85.5	DH, PH
	SK -6	MOCHOVCE-1	PWR	VVER V-213	1471	470	436	SE	ŠKODA	1983-10	1998-7	1998-10	86.9	88.5	-
	SK -7	MOCHOVCE-2	PWR	VVER V-213	1471	501	469	SE	ŠKODA	1983-10	1999-12	2000-4	87.1	88.4	-
SLOVENIA	SI -1	KRSKO	PWR	WH 2LP	1994	727	688	NEK	WH	1975-3	1981-10	1983-1	86.4	87.4	-
SOUTH AFRICA	ZA -1	KOEBERG-1	PWR	CP1	2775	970	930	ESKOM	FRAM	1976-7	1984-4	1984-7	74	77.3	-
	ZA -2	KOEBERG-2	PWR	CP1	2775	970	930	ESKOM	FRAM	1976-7	1985-7	1985-11	73.5	79.5	-
SPAIN	ES -10	COFRENTES	BWR	BWR-6 (Mark 3)	3237	1102	1064	ID	GE	1975-9	1984-10	1985-3	87.4	88.4	-
	ES -11	TRILLO-1	PWR	PWR 3 loops	3010	1066	1003	CNAT	KWU	1979-8	1988-5	1988-8	87.3	87.8	-
	ES -16	VANDELLOS-2	PWR	WH 3LP	2941	1087	1045	ANAV	WH	1980-12	1987-12	1988-3	82.3	83.3	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating, PH process heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
SPAIN	ES -6	ALMARAZ-1	PWR	WH 3LP	2947	1049	1011	CNAT	WH	1973-7	1981-5	1983-9	86	87	-
	ES -7	ALMARAZ-2	PWR	WH 3LP	2947	1044	1006	CNAT	WH	1973-7	1983-10	1984-7	87.7	88.8	-
	ES -8	ASCO-1	PWR	WH 3LP	2941	1033	995	ANAV	WH	1974-5	1983-8	1984-12	85.6	86.2	-
	ES -9	ASCO-2	PWR	WH 3LP	2941	1027	997	ANAV	WH	1975-3	1985-10	1986-3	87.3	88.2	-
SWEDEN	SE -10	RINGHALS-4	PWR	WH 3LP	3300	1171	1130	RAB	WH	1973-11	1982-6	1983-11	83.1	85.4	-
	SE -11	FORSMARK-2	BWR	AA-III, BWR-25	3253	1157	1118	FKA	ABB ATOM	1975-1	1981-1	1981-7	82.6	84.5	-
	SE -12	OSKARSHAMN-3	BWR	AA-IV, BWR-300	3900	1450	1400	OKG	ABB ATOM	1980-5	1985-3	1985-8	80.8	82	-
	SE -14	FORSMARK-3	BWR	AA-IV, BWR-300	3300	1195	1172	FKA	ABB ATOM	1979-1	1985-3	1985-8	85.4	87.5	-
	SE -7	RINGHALS-3	PWR	WH 3LP	3135	1117	1072	RAB	WH	1972-9	1980-9	1981-9	78.5	80.5	-
	SE -9	FORSMARK-1	BWR	AA-III, BWR-25	2927	1027	990	FKA	ABB ATOM	1973-6	1980-6	1980-12	84.4	86.4	-
SWITZERLAND	CH -1	BEZNAU-1	PWR	WH 2LP	1130	380	365	Axpo AG	WH	1965-9	1969-7	1969-12	80.3	80.6	DH
	CH -3	BEZNAU-2	PWR	WH 2LP	1130	380	365	Axpo AG	WH	1968-1	1971-10	1972-3	87.4	87.6	DH
	CH -4	GOESGEN	PWR	PWR 3 Loop	3002	1060	1010	KKG	KWU	1973-12	1979-2	1979-11	89	89.8	PH
	CH -5	LEIBSTADT	BWR	BWR-6	3600	1275	1220	KKL	GETSCO	1974-1	1984-5	1984-12	83.1	84.7	-
UAE	AE -01	BARAKAH-1	PWR	APR-1400	3983	1400	1345	NAWAH	KEPCO	2012-7	2020-8	2021-4	0	0	-
UK	GB -16A	HINKLEY POINT B-1	GCR	AGR	1494	655	485	EDF UK	TNPG	1967-9	1976-10	1978-10	75.8	76.3	-
	GB -16B	HINKLEY POINT B-2	GCR	AGR	1494	655	480	EDF UK	TNPG	1967-9	1976-2	1976-9	74.3	75.2	-
	GB -17A	HUNTERSTON B-1	GCR	AGR	1496	644	490	EDF UK	TNPG	1967-11	1976-2	1976-2	69.4	69.7	-
	GB -17B	HUNTERSTON B-2	GCR	AGR	1496	644	495	EDF UK	TNPG	1967-11	1977-3	1977-3	71.3	71.4	-
	GB -18A	DUNGENESS B-1	GCR	AGR	1500	615	545	EDF UK	APC	1965-10	1983-4	1985-4	43.5	44.7	-
	GB -18B	DUNGENESS B-2	GCR	AGR	1500	615	545	EDF UK	APC	1965-10	1985-12	1989-4	48.7	48.9	-
	GB -19A	HARTLEPOOL A-1	GCR	AGR	1500	655	590	EDF UK	NPC	1968-10	1983-8	1989-4	70.3	70.4	-
	GB -19B	HARTLEPOOL A-2	GCR	AGR	1500	655	595	EDF UK	NPC	1968-10	1984-10	1989-4	71.6	71.8	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating, PH process heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
UK	GB -20A	HEYSHAM A-1	GCR	AGR	1500	625	485	EDF UK	NPC	1970-12	1983-7	1989-4	68.1	68.3	-
	GB -20B	HEYSHAM A-2	GCR	AGR	1500	625	575	EDF UK	NPC	1970-12	1984-10	1989-4	67.3	67.7	-
	GB -22A	HEYSHAM B-1	GCR	AGR	1550	680	620	EDF UK	NPC	1980-8	1988-7	1989-4	80.1	80.7	-
	GB -22B	HEYSHAM B-2	GCR	AGR	1550	680	620	EDF UK	NPC	1980-8	1988-11	1989-4	78.3	79.1	-
	GB -23A	TORNESS-1	GCR	AGR	1623	682	595	EDF UK	NNC	1980-8	1988-5	1988-5	78	79.6	-
	GB -23B	TORNESS-2	GCR	AGR	1623	682	605	EDF UK	NNC	1980-8	1989-2	1989-2	77.3	78.4	-
	GB -24	SIZEWELL B	PWR	SNUPPS	3425	1250	1198	EDF UK	PPC	1988-7	1995-2	1995-9	84.4	85.2	-
UKRAINE	UA -126	ZAPOROZHYE-5	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1985-11	1989-8	1989-10	73.8	75.8	DH
	UA -127	ZAPOROZHYE-6	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1986-6	1995-10	1996-9	79.3	81.4	DH
	UA -27	ROVNO-1	PWR	VVER V-213	1375	420	381	NNEGC	PAIP	1973-8	1980-12	1981-9	79.1	79.7	DH
	UA -28	ROVNO-2	PWR	VVER V-213	1375	415	376	NNEGC	PAIP	1973-10	1981-12	1982-7	80.4	81.3	DH
	UA -29	ROVNO-3	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1980-2	1986-12	1987-5	69.4	71.3	DH
	UA -40	KHMELNITSKI-1	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1981-11	1987-12	1988-8	71.7	72.8	DH
	UA -41	KHMELNITSKI-2	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1985-2	2004-8	2005-12	78.1	79.4	DH
	UA -44	SOUTH UKRAINE-1	PWR	VVER V-302	3000	1000	950	NNEGC	PAA	1976-8	1982-12	1983-12	68	70.3	DH
	UA -45	SOUTH UKRAINE-2	PWR	VVER V-338	3000	1000	950	NNEGC	PAA	1981-7	1985-1	1985-4	64.8	67.1	DH
	UA -48	SOUTH UKRAINE-3	PWR	VVER V-320	3000	1000	950	NNEGC	PAA	1984-11	1989-9	1989-12	68.6	71.9	DH
	UA -54	ZAPOROZHYE-1	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1980-4	1984-12	1985-12	66.7	68.9	DH
	UA -56	ZAPOROZHYE-2	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1981-1	1985-7	1986-2	68.4	70.9	DH
	UA -69	ROVNO-4	PWR	VVER V-320	3000	1000	950	NNEGC	PAA	1986-8	2004-10	2006-4	75.5	77.6	DH
	UA -78	ZAPOROZHYE-3	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1982-4	1986-12	1987-3	71.3	74	DH
	UA -79	ZAPOROZHYE-4	PWR	VVER V-320	3000	1000	950	NNEGC	PAIP	1983-4	1987-12	1988-4	72.9	75.2	DH
USA	US -220	NINE MILE POINT-1	BWR	BWR-2 (Mark 1)	1850	642	613	EXELON	GE	1965-4	1969-11	1969-12	78.9	78.9	-

Note: The column Non-Electrical Applications indicates the use of the facility to provide: DH district heating.

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
USA	US -237	DRESDEN-2	BWR	BWR-3 (Mark 1)	2957	950	894	EXELON	GE	1966-1	1970-4	1970-6	82.1	82.1	-
	US -244	GINNA	PWR	WH 2LP (DRYAMB	1775	608	560	EXELON	WH	1966-4	1969-12	1970-7	87.2	87.2	-
	US -249	DRESDEN-3	BWR	BWR-3 (Mark 1)	2957	935	879	EXELON	GE	1966-10	1971-7	1971-11	79.6	79.7	-
	US -250	TURKEY POINT-3	PWR	WH 3LP (DRYAMB	2644	829	837	FPL	WH	1967-4	1972-11	1972-12	80	80.1	-
	US -251	TURKEY POINT-4	PWR	WH 3LP (DRYAMB	2644	829	821	FPL	WH	1967-4	1973-6	1973-9	80.3	80.3	-
	US -254	QUAD CITIES-1	BWR	BWR-3 (Mark 1)	2957	940	908	EXELON	GE	1967-2	1972-4	1973-2	82.3	82.3	-
	US -255	PALISADES	PWR	CE 2LP (DRYAMB	2565	850	805	ENTERGY	CE	1967-3	1971-12	1971-12	74	74.8	-
	US -259	BROWNS FERRY-1	BWR	BWR-4 (Mark 1)	3458	1256	1200	TVA	GE	1967-5	1973-10	1974-8	77.3	77.6	-
	US -260	BROWNS FERRY-2	BWR	BWR-4 (Mark 1)	3458	1259	1200	TVA	GE	1967-5	1974-8	1975-3	83.1	83.3	-
	US -261	ROBINSON-2	PWR	WH 3LP (DRYAMB	2339	780	741	PROGRESS	WH	1967-4	1970-9	1971-3	80.7	80.9	-
	US -263	MONTICELLO	BWR	BWR-3 (Mark 1)	2004	691	628	NSP	GE	1967-6	1971-3	1971-6	85.9	85.9	-
	US -265	QUAD CITIES-2	BWR	BWR-3 (Mark 1)	2957	940	911	EXELON	GE	1967-2	1972-5	1973-3	81.1	81.6	-
	US -266	POINT BEACH-1	PWR	WH 2LP (DRYAMB	1800	640	591	NEXTERA	WH	1967-7	1970-11	1970-12	85.6	85.9	-
	US -269	OCONEE-1	PWR	B&W LLP (DRYAM	2568	891	847	DUKEENER	B&W	1967-11	1973-5	1973-7	82.7	82.9	-
	US -270	OCONEE-2	PWR	B&W LLP (DRYAM	2568	891	848	DUKEENER	B&W	1967-11	1973-12	1974-9	84.6	84.7	-
	US -272	SALEM-1	PWR	WH 4LP (DRYAMB	3459	1254	1169	PSEG	WH	1968-9	1976-12	1977-6	73	73.2	-
	US -275	DIABLO CANYON-1	PWR	WH 4LP (DRYAMB	3411	1197	1138	PG&E	WH	1968-4	1984-11	1985-5	88.1	88.2	-
	US -277	PEACH BOTTOM-2	BWR	BWR-4 (Mark 1)	3951	1412	1300	EXELON	GE	1968-1	1974-2	1974-7	79.9	79.9	-
	US -278	PEACH BOTTOM-3	BWR	BWR-4 (Mark 1)	3951	1412	1331	EXELON	GE	1968-1	1974-9	1974-12	80.2	80.2	-
	US -280	SURRY-1	PWR	WH 3LP (DRYSUB	2587	890	838	DOMINION	WH	1968-6	1972-7	1972-12	79.3	79.3	-
	US -281	SURRY-2	PWR	WH 3LP (DRYSUB	2587	890	838	DOMINION	WH	1968-6	1973-3	1973-5	79.8	79.8	-
	US -282	PRAIRIE ISLAND-1	PWR	WH 2LP (DRYAMB	1677	566	522	NSP	WH	1968-6	1973-12	1973-12	87.2	87.2	-
	US -286	INDIAN POINT-3	PWR	WH 4LP (DRYAMB	3216	1085	1030	ENTERGY	WH	1968-11	1976-4	1976-8	75.1	75.2	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
USA	US -287	OCONEE-3	PWR	B&W LLP (DRYAM	2568	900	859	DUKEENER	B&W	1967-11	1974-9	1974-12	83.5	83.8	-
	US -296	BROWNS FERRY-3	BWR	BWR-4 (Mark 1)	3458	1260	1210	TVA	GE	1968-7	1976-9	1977-3	84.9	85.2	-
	US -298	COOPER	BWR	BWR-4 (Mark 1)	2419	801	769	ENTERGY	GE	1968-6	1974-5	1974-7	79.7	79.7	-
	US -301	POINT BEACH-2	PWR	WH 2LP (DRYAMB	1800	640	591	NEXTERA	WH	1968-7	1972-8	1972-10	86.7	86.7	-
	US -306	PRAIRIE ISLAND-2	PWR	WH 2LP (DRYAMB	1677	560	519	NSP	WH	1969-6	1974-12	1974-12	88.2	88.2	-
	US -311	SALEM-2	PWR	WH 4LP (DRYAMB	3459	1200	1158	PSEG	WH	1968-9	1981-6	1981-10	76	76	-
	US -313	ANO-1	PWR	B&W LLP (DRYAM	2568	903	836	ENTERGY	B&W	1968-10	1974-8	1974-12	81.4	81.8	-
	US -315	COOK-1	PWR	WH 4LP (ICECDN	3304	1131	1030	AEP	WH	1969-3	1975-2	1975-8	72.9	73	-
	US -316	COOK-2	PWR	WH 4LP (ICECDN	3468	1231	1168	AEP	WH	1969-3	1978-3	1978-7	74.3	74.4	-
	US -317	CALVERT CLIFFS-1	PWR	CE 2LP (DRYAMB	2737	918	877	EXELON	CE	1968-6	1975-1	1975-5	81.9	82.1	-
	US -318	CALVERT CLIFFS-2	PWR	CE 2LP (DRYAMB	2737	911	855	EXELON	CE	1968-6	1976-12	1977-4	85	85.1	-
	US -321	HATCH-1	BWR	BWR-4 (Mark 1)	2804	911	876	SOUTHERN	GE	1968-9	1974-11	1975-12	83.7	83.7	-
	US -323	DIABLO CANYON-2	PWR	WH 4LP (DRYAMB	3411	1197	1118	PG&E	WH	1970-12	1985-10	1986-3	88.8	88.9	-
	US -324	BRUNSWICK-2	BWR	BWR-4 (Mark 1)	2923	960	932	PROGRESS	GE	1970-2	1975-4	1975-11	78.1	78.4	-
	US -325	BRUNSWICK-1	BWR	BWR-4 (Mark 1)	2923	990	938	PROGRESS	GE	1970-2	1976-12	1977-3	78.9	79.2	-
	US -327	SEQUOYAH-1	PWR	WH 4LP (ICECND	3455	1221	1152	TVA	WH	1970-5	1980-7	1981-7	77.1	77.1	-
	US -328	SEQUOYAH-2	PWR	WH 4LP (ICECND	3455	1200	1139	TVA	WH	1970-5	1981-12	1982-6	80.4	80.4	-
	US -333	FITZPATRICK	BWR	BWR-4 (Mark 1)	2536	849	813	EXELON	GE	1968-9	1975-2	1975-7	81.3	81.4	-
	US -334	BEAVER VALLEY-1	PWR	WH 3LP (DRYSUB	2900	959	908	FENOC	WH	1970-6	1976-6	1976-10	78.5	78.5	-
	US -335	ST. LUCIE-1	PWR	CE 2LP (DRYAMB	3020	1045	981	FPL	CE	1970-7	1976-5	1976-12	83.4	83.6	-
	US -336	MILLSTONE-2	PWR	CE 2LP (DRYAMB	2700	918	869	DOMINION	CE	1969-11	1975-11	1975-12	72.5	73.1	-
	US -338	NORTH ANNA-1	PWR	WH 3LP (DRYSUB	2940	990	948	DOMINION	WH	1971-2	1978-4	1978-6	84.6	85.2	-
	US -339	NORTH ANNA-2	PWR	WH 3LP (DRYSUB	2940	1011	944	DOMINION	WH	1971-2	1980-8	1980-12	86.9	87.5	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
USA	US -341	FERMI-2	BWR	BWR-4 (Mark 1)	3486	1198	1115	DTEDISON	GE	1972-9	1986-9	1988-1	80	80	-
	US -346	DAVIS BESSE-1	PWR	B&W RLP (DRYAM	2817	925	894	FENOC	B&W	1970-9	1977-8	1978-7	74.1	74.2	-
	US -348	FARLEY-1	PWR	WH 3LP (DRYAMB	2775	918	874	SOUTHERN	WH	1970-10	1977-8	1977-12	85.9	86	-
	US -352	LIMERICK-1	BWR	BWR-4 (Mark 2)	3515	1194	1134	EXELON	GE	1974-6	1985-4	1986-2	91.6	91.6	-
	US -353	LIMERICK-2	BWR	BWR-4 (Mark 2)	3515	1194	1134	EXELON	GE	1974-6	1989-9	1990-1	93.8	93.8	-
	US -354	HOPE CREEK-1	BWR	BWR-4 (Mark 1)	3840	1240	1172	PSEG	GE	1976-3	1986-8	1986-12	88.6	88.6	-
	US -364	FARLEY-2	PWR	WH 3LP (DRYAMB	2775	928	883	SOUTHERN	WH	1970-10	1981-5	1981-7	89.1	89.1	-
	US -366	HATCH-2	BWR	BWR-4 (Mark 1)	2804	921	883	SOUTHERN	GE	1972-2	1978-9	1979-9	85.4	85.4	-
	US -368	ANO-2	PWR	CE 2LP (DRYAMB	3026	1065	988	ENTERGY	CE	1968-12	1978-12	1980-3	84.1	84.3	-
	US -369	MCGUIRE-1	PWR	WH 4LP (ICECND	3411	1215	1158	DUKEENER	WH	1971-4	1981-9	1981-12	83.8	84.1	-
	US -370	MCGUIRE-2	PWR	WH 4LP (ICECND	3411	1215	1158	DUKEENER	WH	1971-4	1983-5	1984-3	87	87	-
	US -373	LASALLE-1	BWR	BWR-5 (Mark 2)	3546	1207	1137	EXELON	GE	1973-9	1982-9	1984-1	82.1	82.1	-
	US -374	LASALLE-2	BWR	BWR-5 (Mark 2)	3546	1207	1140	EXELON	GE	1973-9	1984-4	1984-10	81.7	81.7	-
	US -382	WATERFORD-3	PWR	CE 2LP (DRYAMB	3716	1250	1168	ENTERGY	CE	1974-11	1985-3	1985-9	87.5	87.7	-
	US -387	SUSQUEHANNA-1	BWR	BWR-4 (Mark 2)	3952	1330	1257	PPL_SUSQ	GE	1973-11	1982-11	1983-6	85.5	85.5	-
	US -388	SUSQUEHANNA-2	BWR	BWR-4 (Mark 2)	3952	1330	1257	PPL_SUSQ	GE	1973-11	1984-7	1985-2	88.7	88.7	-
	US -389	ST. LUCIE-2	PWR	CE 2LP (DRYAMB	3020	1050	987	FPL	CE	1977-6	1983-6	1983-8	86.5	86.8	-
	US -390	WATTS BAR-1	PWR	WH 4LP (ICECND	3459	1210	1157	TVA	WH	1973-7	1996-2	1996-5	90	90.1	-
	US -391	WATTS BAR-2	PWR	WH 4LP (ICECND	3411	1218	1164	TVA	WH	1973-9	2016-6	2016-10	82.6	82.6	-
	US -395	SUMMER-1	PWR	WH 3LP (DRYAMB	2900	1006	973	SCE&G	WH	1973-3	1982-11	1984-1	86.1	86.1	-
	US -397	COLUMBIA	BWR	BWR-5 (Mark 2)	3486	1190	1131	ENERGYNW	GE	1972-8	1984-5	1984-12	81.5	82.1	-
	US -400	HARRIS-1	PWR	WH 3LP (DRYAMB	2900	980	964	PROGRESS	WH	1978-1	1987-1	1987-5	89.4	89.5	-
	US -410	NINE MILE POINT-2	BWR	BWR-5 (Mark 2)	3988	1320	1277	EXELON	GE	1975-8	1987-8	1988-3	87.2	87.2	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
USA	US -412	BEAVER VALLEY-2	PWR	WH 3LP (DRYSUB	2900	958	905	FENOC	WH	1974-5	1987-8	1987-11	88.8	88.8	-
	US -413	CATAWBA-1	PWR	WH 4LP (ICECND	3411	1188	1160	DUKEENER	WH	1974-5	1985-1	1985-6	87	87	-
	US -414	CATAWBA-2	PWR	WH 4LP (ICECND	3411	1188	1150	DUKEENER	WH	1974-5	1986-5	1986-8	88.1	88.1	-
	US -416	GRAND GULF-1	BWR	BWR-6 (Mark 3)	4408	1500	1401	ENTERGY	GE	1974-5	1984-10	1985-7	84	84.2	-
	US -423	MILLSTONE-3	PWR	WH 4LP (DRYSUB	3650	1280	1210	DOMINION	WH	1974-8	1986-2	1986-4	81	81.1	-
	US -424	VOGTLE-1	PWR	WH 4LP (DRYAMB	3626	1229	1150	SOUTHERN	WH	1976-8	1987-3	1987-6	91.4	91.5	-
	US -425	VOGTLE-2	PWR	WH 4LP (DRYAMB	3626	1229	1152	SOUTHERN	WH	1976-8	1989-4	1989-5	91.6	91.6	-
	US -440	PERRY-1	BWR	BWR-6 (Mark 3)	3758	1303	1240	FENOC	GE	1974-10	1986-12	1987-11	84.2	84.2	-
	US -443	SEABROOK-1	PWR	WH 4LP (DRYAMB	3648	1296	1246	NEXTERA	WH	1976-7	1990-5	1990-8	88.9	88.9	-
	US -445	COMANCHE PEAK-1	PWR	WH 4LP (DRYAMB	3612	1259	1205	LUMINANT	WH	1974-12	1990-4	1990-8	90.6	90.6	-
	US -446	COMANCHE PEAK-2	PWR	WH 4LP (DRYAMB	3612	1250	1195	LUMINANT	WH	1974-12	1993-4	1993-8	91.4	91.4	-
	US -454	BYRON-1	PWR	WH 4LP (DRYAMB	3645	1242	1164	EXELON	WH	1975-4	1985-3	1985-9	90.1	90.1	-
	US -455	BYRON-2	PWR	WH 4LP (DRYAMB	3645	1210	1136	EXELON	WH	1975-4	1987-2	1987-8	93.1	93.1	-
	US -456	BRAIDWOOD-1	PWR	WH 4LP (DRYAMB	3645	1270	1194	EXELON	WH	1975-8	1987-7	1988-7	90.5	90.5	-
	US -457	BRAIDWOOD-2	PWR	WH 4LP (DRYAMB	3645	1230	1160	EXELON	WH	1975-8	1988-5	1988-10	92.4	92.4	-
	US -458	RIVER BEND-1	BWR	BWR-6 (Mark 3)	3091	1016	967	ENTERGY	GE	1977-3	1985-12	1986-6	84.8	84.9	-
	US -461	CLINTON-1	BWR	BWR-6 (Mark 3)	3473	1098	1062	EXELON	GE	1975-10	1987-4	1987-11	82.2	82.2	-
	US -482	WOLF CREEK	PWR	WH 4LP (DRYAMB	3565	1285	1200	WCNOC	WH	1977-5	1985-6	1985-9	85.9	85.9	-
	US -483	CALLAWAY-1	PWR	WH 4LP (DRYAMB	3565	1275	1215	AmerenUE	WH	1975-9	1984-10	1984-12	88.4	88.4	-
	US -498	SOUTH TEXAS-1	PWR	WH 4LP (DRYAMB	3853	1354	1280	STP	WH	1975-12	1988-3	1988-8	84.4	84.4	-
	US -499	SOUTH TEXAS-2	PWR	WH 4LP (DRYAMB	3853	1354	1280	STP	WH	1975-12	1989-4	1989-6	84.3	84.3	-
	US -528	PALO VERDE-1	PWR	CE80 2LP (DRYA	3990	1414	1311	APS	CE	1976-5	1985-6	1986-1	82.2	82.3	-
	US -529	PALO VERDE-2	PWR	CE80 2LP (DRYA	3990	1414	1314	APS	CE	1976-6	1986-5	1986-9	84.5	84.5	-

TABLE 14. OPERATIONAL REACTORS, 31 DEC. 2020 — continued

Country	Code	Reactor Name	Type	Model	Capacity [MW]			Operator	NSSS	Const.	Grid	Comm.	EAF % 2010 - 2020	UCF % 2010 - 2020	NEA
					Thermal	Gross	Net		Supplier	Start	Connection	Operation			
USA	US -530	PALO VERDE-3	PWR	CE80 2LP (DRYA	3990	1414	1312	APS	CE	1976-6	1987-11	1988-1	86.3	86.5	-
Note: Status as of 31 December 2020, 442 reactors (392612 MW(e)) were connected to the grid, including 4 units (3844MW(e)) in Taiwan, China.															
TAIWAN,CHINA	TW -3	KUOSHENG-1	BWR	BWR-6	2894	985	985	TPC	GE	1975-11	1981-5	1981-12	83.9	84.7	-
	TW -4	KUOSHENG-2	BWR	BWR-6	2894	985	985	TPC	GE	1976-3	1982-6	1983-3	83.3	84.3	-
	TW -5	MAANSHAN-1	PWR	WH 3LP (WE 312	2822	951	936	TPC	WH	1978-8	1984-5	1984-7	86.7	87.7	-
	TW -6	MAANSHAN-2	PWR	WH 3LP (WE 312	2822	951	938	TPC	WH	1979-2	1985-2	1985-5	86.2	87.4	-

TABLE 15. REACTORS IN LONG TERM SHUTDOWN, 31 DEC. 2020

Note:

Status as of 31 December 2020, no reactor was in long term shutdown.

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
ARMENIA	AM -18	ARMENIAN-1	PWR	1375	408	376	ANPPCJSC	FAEA	1969-7	1976-12	1977-10	1989-2
BELGIUM	BE -1	BR-3	PWR	41	12	10	CEN/SCK	WH	1957-11	1962-10	1962-10	1987-6
BULGARIA	BG -1	KOZLODUY-1	PWR	1375	440	408	KOZNPP	AEE	1970-4	1974-7	1974-10	2002-12
	BG -2	KOZLODUY-2	PWR	1375	440	408	KOZNPP	AEE	1970-4	1975-8	1975-11	2002-12
	BG -3	KOZLODUY-3	PWR	1375	440	408	KOZNPP	AEE	1973-10	1980-12	1981-1	2006-12
	BG -4	KOZLODUY-4	PWR	1375	440	408	KOZNPP	AEE	1973-10	1982-5	1982-6	2006-12
CANADA	CA -2	DOUGLAS POINT	PHWR	704	218	206	OH	AECL	1960-2	1967-1	1968-9	1984-5
	CA -3	GENTILLY-1	HWLWR	792	266	250	HQ	AECL	1966-9	1971-4	1972-5	1977-6
	CA -12	GENTILLY-2	PHWR	2156	675	635	HQ	AECL	1974-4	1982-12	1983-10	2012-12
	CA -5	PICKERING-2	PHWR	1744	542	515	OPG	OH/AECL	1966-9	1971-10	1971-12	2007-5
	CA -6	PICKERING-3	PHWR	1744	542	515	OPG	OH/AECL	1967-12	1972-5	1972-6	2008-10
	CA -1	ROLPHTON NPD	PHWR	92	25	22	OH	CGE	1958-1	1962-6	1962-10	1987-8
FRANCE	FR -9	BUGEY-1	GCR	1954	555	540	EDF	FRAM	1965-12	1972-4	1972-7	1994-5
	FR -2	CHINON A-1	GCR	300	80	70	EDF	LEVIVIER	1957-2	1963-6	1964-2	1973-4
	FR -3	CHINON A-2	GCR	800	230	180	EDF	LEVIVIER	1959-8	1965-2	1965-2	1985-6
	FR -4	CHINON A-3	GCR	1170	480	360	EDF	GTM	1961-3	1966-8	1966-8	1990-6
	FR -5	CHOOZ-A (ARDENNES)	PWR	1040	320	305	SENA	A/F/W	1962-1	1967-4	1967-4	1991-10
	FR -6	EL-4 (MONTS D'ARREE)	HWGCR	250	75	70	EDF	GAAA	1962-7	1967-7	1968-6	1985-7
	FR -11	FESSENHEIM-1	PWR	2785	920	880	EDF	FRAM	1971-9	1977-4	1978-1	2020-2
	FR -12	FESSENHEIM-2	PWR	2785	920	880	EDF	FRAM	1972-2	1977-10	1978-4	2020-6
	FR -1B	G-2 (MARCOULE)	GCR	260	43	39	COGEMA	SACM	1955-3	1959-4	1959-4	1980-2
	FR -1	G-3 (MARCOULE)	GCR	260	43	40	COGEMA	SACM	1956-3	1960-4	1960-4	1984-6
	FR -10	PHENIX	FBR	345	142	130	CEA/EDF	CNCLNEY	1968-11	1973-12	1974-7	2010-2
	FR -7	ST. LAURENT A-1	GCR	1650	500	390	EDF	FRAM	1963-10	1969-3	1969-6	1990-4
	FR -8	ST. LAURENT A-2	GCR	1475	530	465	EDF	FRAM	1966-1	1971-8	1971-11	1992-5
	FR -24	SUPER-PHENIX	FBR	3000	1242	1200	EDF	ASPALDO	1976-12	1986-1	1986-12	1998-12
GERMANY	DE -4	AVR JUELICH	HTGR	46	15	13	AVR	BBK	1961-8	1967-12	1969-5	1988-12

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020 — continued

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
GERMANY	DE -12	BIBLIS-A	PWR	3517	1225	1167	RWE	KWU	1970-1	1974-8	1975-2	2011-8
	DE -18	BIBLIS-B	PWR	3733	1300	1240	RWE	KWU	1972-2	1976-4	1977-1	2011-8
	DE -13	BRUNSBUETTEL	BWR	2292	806	771	KKB	KWU	1970-4	1976-7	1977-2	2011-8
	DE -23	GRAFENRHEINFELD	PWR	3765	1345	1275	E.ON	KWU	1975-1	1981-12	1982-6	2015-6
	DE -502	GREIFSWALD-1	PWR	1375	440	408	EWN	AEE	1970-3	1973-12	1974-7	1990-2
	DE -503	GREIFSWALD-2	PWR	1375	440	408	EWN	AEE	1970-3	1974-12	1975-4	1990-2
	DE -504	GREIFSWALD-3	PWR	1375	440	408	EWN	AEE	1972-4	1977-10	1978-5	1990-2
	DE -505	GREIFSWALD-4	PWR	1375	440	408	EWN	AEE	1972-4	1979-9	1979-11	1990-7
	DE -506	GREIFSWALD-5	PWR	1375	440	408	EWN	AEE	1976-12	1989-4	1989-11	1989-11
	DE -3	GUNDREMMINGEN-A	BWR	801	250	237	KGB	AEG,GE	1962-12	1966-12	1967-4	1977-1
	DE -26	GUNDREMMINGEN-B	BWR	3840	1344	1284	KGG	KWU	1976-7	1984-3	1984-7	2017-12
	DE -7	HDR GROSSWELZHEIM	BWR	100	27	25	HDR	AEG,KWU	1965-1	1969-10	1970-8	1971-4
	DE -16	ISAR-1	BWR	2575	912	878	E.ON	KWU	1972-5	1977-12	1979-3	2011-8
	DE -8	KNK II	FBR	58	21	17	KBG	IA	1974-9	1978-4	1979-3	1991-8
	DE -20	KRUEMMEL	BWR	3690	1402	1346	KKK	KWU	1974-4	1983-9	1984-3	2011-8
	DE -6	LINGEN	BWR	520	268	183	KWL	AEG	1964-10	1968-7	1968-10	1977-1
	DE -22	MUELHEIM-KAERLICH	PWR	3760	1302	1219	KGG	BBR	1975-1	1986-3	1987-8	1988-9
	DE -2	MZFR	PHWR	200	57	52	KBG	SIEMENS	1961-12	1966-3	1966-12	1984-5
	DE -15	NECKARWESTHEIM-1	PWR	2497	840	785	EnKK	KWU	1972-2	1976-6	1976-12	2011-8
	DE -11	NIEDERAICHBACH	HWGCR	321	106	100	KKN	SIEM,KWU	1966-6	1973-1	1973-1	1974-7
	DE -5	OBRIGHEIM	PWR	1050	357	340	EnBW	SIEM,KWU	1965-3	1968-10	1969-3	2005-5
	DE -14	PHILIPPSBURG-1	BWR	2575	926	890	EnKK	KWU	1970-10	1979-5	1980-3	2011-8
	DE -24	PHILIPPSBURG-2	PWR	3950	1468	1402	EnKK	KWU	1977-7	1984-12	1985-4	2019-12
	DE -501	RHEINSBERG	PWR	265	70	62	EWN	AEE	1960-1	1966-5	1966-10	1990-6
	DE -10	STADE	PWR	1900	672	640	E.ON	KWU	1967-12	1972-1	1972-5	2003-11
	DE -19	THTR-300	HTGR	760	308	296	HKG	HRB	1971-5	1985-11	1987-6	1988-9
	DE -17	UNTERWESER	PWR	3900	1410	1345	E.ON	KWU	1972-7	1978-9	1979-9	2011-8

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020 — continued

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
GERMANY	DE -1	VAK KAHL	BWR	60	16	15	VAK	GE,AEG	1958-7	1961-6	1962-2	1985-11
	DE -9	WUERGASSEN	BWR	1912	670	640	PE	AEG,KWU	1968-1	1971-12	1975-11	1994-8
ITALY	IT -4	CAORSO	BWR	2651	882	860	SOGIN	AMN/GETS	1970-1	1978-5	1981-12	1990-7
	IT -3	ENRICO FERMI	PWR	870	270	260	SOGIN	EL/WEST	1961-7	1964-10	1965-1	1990-7
	IT -2	GARIGLIANO	BWR	506	160	150	SOGIN	GE	1959-11	1964-1	1964-6	1982-3
	IT -1	LATINA	GCR	660	160	153	SOGIN	TNPG	1958-11	1963-5	1964-1	1987-12
JAPAN	JP -20	FUGEN ATR	HWLWR	557	165	148	JAEA	HITACHI	1972-5	1978-7	1979-3	2003-3
	JP -5	FUKUSHIMA-DAIICHI-1	BWR	1380	460	439	TEPCO	GE/GETSC	1967-7	1970-11	1971-3	2011-5
	JP -9	FUKUSHIMA-DAIICHI-2	BWR	2381	784	760	TEPCO	GE/T	1969-6	1973-12	1974-7	2011-5
	JP -10	FUKUSHIMA-DAIICHI-3	BWR	2381	784	760	TEPCO	TOSHIBA	1970-12	1974-10	1976-3	2011-5
	JP -16	FUKUSHIMA-DAIICHI-4	BWR	2381	784	760	TEPCO	HITACHI	1973-2	1978-2	1978-10	2011-5
	JP -17	FUKUSHIMA-DAIICHI-5	BWR	2381	784	760	TEPCO	TOSHIBA	1972-5	1977-9	1978-4	2013-12
	JP -18	FUKUSHIMA-DAIICHI-6	BWR	3293	1100	1067	TEPCO	GE/T	1973-10	1979-5	1979-10	2013-12
	JP -25	FUKUSHIMA-DAINI-1	BWR	3293	1100	1067	TEPCO	TOSHIBA	1976-3	1981-7	1982-4	2019-9
	JP -26	FUKUSHIMA-DAINI-2	BWR	3293	1100	1067	TEPCO	HITACHI	1979-5	1983-6	1984-2	2019-9
	JP -35	FUKUSHIMA-DAINI-3	BWR	3293	1100	1067	TEPCO	TOSHIBA	1981-3	1984-12	1985-6	2019-9
	JP -38	FUKUSHIMA-DAINI-4	BWR	3293	1100	1067	TEPCO	HITACHI	1981-5	1986-12	1987-8	2019-9
	JP -12	GENKAI-1	PWR	1650	559	529	KYUSHU	MHI	1971-9	1975-2	1975-10	2015-4
	JP -27	GENKAI-2	PWR	1650	559	529	KYUSHU	MHI	1977-2	1980-6	1981-3	2019-4
	JP -11	HAMAOKA-1	BWR	1593	540	515	CHUBU	TOSHIBA	1971-6	1974-8	1976-3	2009-1
	JP -24	HAMAOKA-2	BWR	2436	840	806	CHUBU	TOSHIBA	1974-6	1978-5	1978-11	2009-1
	JP -23	IKATA-1	PWR	1650	566	538	SHIKOKU	MHI	1973-9	1977-2	1977-9	2016-5
	JP -32	IKATA-2	PWR	1650	566	538	SHIKOKU	MHI	1978-8	1981-8	1982-3	2018-5
	JP -1	JPDR	BWR	90	13	12	JAEA	GE	1960-12	1963-10	1965-3	1976-3
	JP -4	MIHAMA-1	PWR	1031	340	320	KEPCO	WH	1967-2	1970-8	1970-11	2015-4
	JP -6	MIHAMA-2	PWR	1456	500	470	KEPCO	MHI	1968-5	1972-4	1972-7	2015-4
	JP -31	MONJU	FBR	714	280	246	JAEA	T/H/F/M	1986-5	1995-8		2017-12

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020 — continued

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
JAPAN	JP -15	OHI-1	PWR	3423	1175	1120	KEPCO	WH	1972-10	1977-12	1979-3	2018-3
	JP -19	OHI-2	PWR	3423	1175	1120	KEPCO	WH	1972-12	1978-10	1979-12	2018-3
	JP -22	ONAGAWA-1	BWR	1593	524	498	TOHOKU	TOSHIBA	1980-7	1983-11	1984-6	2018-12
	JP -7	SHIMANE-1	BWR	1380	460	439	CHUGOKU	HITACHI	1970-7	1973-12	1974-3	2015-4
	JP -2	TOKAI-1	GCR	587	166	137	JAPCO	GEC	1961-3	1965-11	1966-7	1998-3
	JP -3	TSURUGA-1	BWR	1070	357	340	JAPCO	GE	1966-11	1969-11	1970-3	2015-4
KAZAKHSTAN	KZ -10	AKTAU	FBR	1000	90	52	MAEC-KAZ	MAEC-KAZ	1964-10	1973-7		1999-4
KOREA,REP.OF	KR -1	KORI-1	PWR	1729	607	576	KHNP	WH	1972-8	1977-6	1978-4	2017-6
	KR -3	WOLSONG-1	PHWR	2061	683	661	KHNP	AECL	1977-10	1982-12	1983-4	2019-12
LITHUANIA	LT -46	IGNALINA-1	LWGR	4800	1300	1185	INPP	MAEP	1977-5	1983-12	1985-5	2004-12
	LT -47	IGNALINA-2	LWGR	4800	1300	1185	INPP	MAEP	1978-1	1987-8	1987-12	2009-12
NETHERLANDS	NL -1	DODEWAARD	BWR	183	60	55	BV GKN	RDM	1965-5	1968-10	1969-3	1997-3
RUSSIA	RU -1	APS-1 OBNINSK	LWGR	30	6	5	MSM	MSM	1951-1	1954-6	1954-12	2002-4
	RU -3	BELOYARSK-1	LWGR	286	108	102	REA	MSM	1958-6	1964-4	1964-4	1983-1
	RU -6	BELOYARSK-2	LWGR	530	160	146	REA	MSM	1962-1	1967-12	1969-12	1990-1
	RU -141	BILIBINO-1	LWGR	62	12	11	REA	AEM	1970-1	1974-1	1974-4	2019-1
	RU -15	LENINGRAD-1	LWGR	3200	1000	925	REA	AEM	1970-3	1973-12	1974-11	2018-12
	RU -16	LENINGRAD-2	LWGR	3200	1000	925	REA	AEM	1970-6	1975-7	1976-2	2020-11
	RU -4	NOVOVORONEZH-1	PWR	760	210	197	REA	MSM	1957-7	1964-9	1964-12	1988-2
	RU -8	NOVOVORONEZH-2	PWR	1320	365	336	REA	MSM	1964-6	1969-12	1970-4	1990-8
	RU -9	NOVOVORONEZH-3	PWR	1375	417	385	REA	AEM	1967-7	1971-12	1972-6	2016-12
SLOVAKIA	SK -1	BOHUNICE A1	HWGCR	560	143	93	JAVYS	ŠKODA	1958-8	1972-12	1972-12	1977-2
	SK -2	BOHUNICE-1	PWR	1375	440	408	JAVYS	AEE	1972-4	1978-12	1980-4	2006-12
	SK -3	BOHUNICE-2	PWR	1375	440	408	JAVYS	AEE	1972-4	1980-3	1981-1	2008-12
SPAIN	ES -1	JOSE CABRERA-1	PWR	510	150	141	UFG	WH	1964-6	1968-7	1969-8	2006-4
	ES -2	SANTA MARIA DE GARONA	BWR	1381	466	446	NUCLENOR	GE	1966-9	1971-3	1971-5	2017-8
	ES -3	VANDELLOS-1	GCR	1670	500	480	HIFRENSA	CEA	1968-6	1972-5	1972-8	1990-7

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020 — continued

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
SWEDEN	SE -1	AGESTA	PHWR	80	12	10	SVAFO	ABB ATOM	1957-12	1964-5	1964-5	1974-6
	SE -6	BARSEBACK-1	BWR	1800	615	600	BKAB	ASEASTAL	1971-2	1975-5	1975-7	1999-11
	SE -8	BARSEBACK-2	BWR	1800	615	600	BKAB	ABB ATOM	1973-1	1977-3	1977-7	2005-5
	SE -2	OSKARSHAMN-1	BWR	1375	492	473	OKG	ABB ATOM	1966-8	1971-8	1972-2	2017-6
	SE -3	OSKARSHAMN-2	BWR	1800	661	638	OKG	ABB ATOM	1969-9	1974-10	1975-1	2016-12
	SE -4	RINGHALS-1	BWR	2540	910	881	RAB	ABB ATOM	1969-2	1974-10	1976-1	2020-12
	SE -5	RINGHALS-2	PWR	2652	963	852	RAB	WH	1970-10	1974-8	1975-5	2019-12
SWITZERLAND	CH -8	LUCENS	HWGCR	28	7	6	EOS	NGA	1962-4	1968-1		1969-1
	CH -2	MUEHLEBERG	BWR	1097	390	373	BKW	GETSCO	1967-3	1971-7	1972-11	2019-12
UK	GB -3A	BERKELEY-1	GCR	620	166	138	ML	TNPG	1957-1	1962-6	1962-6	1989-3
	GB -3B	BERKELEY-2	GCR	620	166	138	ML	TNPG	1957-1	1962-6	1962-10	1988-10
	GB -4A	BRADWELL-1	GCR	481	146	123	ML	TNPG	1957-1	1962-7	1962-7	2002-3
	GB -4B	BRADWELL-2	GCR	481	146	123	ML	TNPG	1957-1	1962-7	1962-11	2002-3
	GB -1A	CALDER HALL-1	GCR	268	60	49	SL	UKAEA	1953-8	1956-8	1956-10	2003-3
	GB -1B	CALDER HALL-2	GCR	268	60	49	SL	UKAEA	1953-8	1957-2	1957-2	2003-3
	GB -1C	CALDER HALL-3	GCR	268	60	49	SL	UKAEA	1955-8	1958-3	1958-5	2003-3
	GB -1D	CALDER HALL-4	GCR	268	60	49	SL	UKAEA	1955-8	1959-4	1959-4	2003-3
	GB -2A	CHAPELCROSS-1	GCR	260	60	48	ML	UKAEA	1955-10	1959-2	1959-3	2004-6
	GB -2B	CHAPELCROSS-2	GCR	260	60	48	ML	UKAEA	1955-10	1959-7	1959-8	2004-6
	GB -2C	CHAPELCROSS-3	GCR	260	60	48	ML	UKAEA	1955-10	1959-11	1959-12	2004-6
	GB -2D	CHAPELCROSS-4	GCR	260	60	48	ML	UKAEA	1955-10	1960-1	1960-3	2004-6
	GB -14	DOUNREAY DFR	FBR	60	15	11	UKAEA	UKAEA	1955-3	1962-10	1962-10	1977-3
	GB -15	DOUNREAY PFR	FBR	600	250	234	UKAEA	TNPG	1966-1	1975-1	1976-7	1994-3
	GB -9A	DUNGENESS A-1	GCR	840	230	225	ML	TNPG	1960-7	1965-9	1965-10	2006-12
	GB -9B	DUNGENESS A-2	GCR	840	230	225	ML	TNPG	1960-7	1965-11	1965-12	2006-12
	GB -7A	HINKLEY POINT A-1	GCR	900	267	235	ML	EE/B&W/T	1957-11	1965-2	1965-3	2000-5
	GB -7B	HINKLEY POINT A-2	GCR	900	267	235	ML	EE/B&W/T	1957-11	1965-3	1965-5	2000-5

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020 — continued

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
UK	GB -6A	HUNTERSTON A-1	GCR	595	173	150	ML	GEC	1957-10	1964-2	1964-2	1990-3
	GB -6B	HUNTERSTON A-2	GCR	595	173	150	ML	GEC	1957-10	1964-6	1964-7	1989-12
	GB -11A	OLDBURY A-1	GCR	730	230	217	ML	TNPG	1962-5	1967-11	1967-12	2012-2
	GB -11B	OLDBURY A-2	GCR	660	230	217	ML	TNPG	1962-5	1968-4	1968-9	2011-6
	GB -10A	SIZEWELL A-1	GCR	1010	245	210	ML	EE/B&W/T	1961-4	1966-1	1966-3	2006-12
	GB -10B	SIZEWELL A-2	GCR	1010	245	210	ML	EE/B&W/T	1961-4	1966-4	1966-9	2006-12
	GB -8A	TRAWSFYNYDD-1	GCR	850	235	195	ML	APC	1959-7	1965-1	1965-3	1991-2
	GB -8B	TRAWSFYNYDD-2	GCR	850	235	195	ML	APC	1959-7	1965-2	1965-3	1991-2
	GB -5	WINDSCALE AGR	GCR	120	36	24	UKAEA	UKAEA	1958-11	1963-2	1963-3	1981-4
	GB -12	WINFRITH SGHWR	SGHWR	318	100	92	UKAEA	ICL/FE	1963-5	1967-12	1968-1	1990-9
	GB -13A	WYLFA-1	GCR	1650	530	490	ML	EE/B&W/T	1963-9	1971-1	1971-11	2015-12
	GB -13B	WYLFA-2	GCR	1920	540	490	ML	EE/B&W/T	1963-9	1971-7	1972-1	2012-4
UKRAINE	UA -25	CHERNOBYL-1	LWGR	3200	800	740	MTE	FAEA	1970-3	1977-9	1978-5	1996-11
	UA -26	CHERNOBYL-2	LWGR	3200	1000	925	MTE	FAEA	1973-2	1978-12	1979-5	1991-10
	UA -42	CHERNOBYL-3	LWGR	3200	1000	925	MTE	FAEA	1976-3	1981-12	1982-6	2000-12
	UA -43	CHERNOBYL-4	LWGR	3200	1000	925	MTE	FAEA	1979-4	1983-12	1984-3	1986-4
USA	US -155	BIG ROCK POINT	BWR	240	71	67	CPC	GE	1960-5	1962-12	1963-3	1997-8
	US -014	BONUS	BWR	50	18	17	DOE/PRWR	GNEPRWRA	1960-1	1964-8	1965-9	1968-6
	US -302	CRYSTAL RIVER-3	PWR	2568	890	860	PROGRESS	B&W	1968-9	1977-1	1977-3	2013-2
	US -144	CVTR	PHWR	65	19	17	CVPA	WH	1960-1	1963-12	1963-12	1967-1
	US -10	DRESDEN-1	BWR	700	207	197	EXELON	GE	1956-5	1960-4	1960-7	1978-10
	US -331	DUANE ARNOLD-1	BWR	1912	624	601	NEXTERA	GE	1970-6	1974-5	1975-2	2020-10
	US -011	ELK RIVER	BWR	58	24	22	RCPA	AC	1959-1	1963-8	1964-7	1968-2
	US -16	FERMI-1	FBR	200	65	61	DTEDISON	UEC	1956-8	1966-8	1966-8	1972-11
	US -285	FORT CALHOUN-1	PWR	1500	512	482	EXELON	CE	1968-6	1973-8	1973-9	2016-10
	US -267	FORT ST. VRAIN	HTGR	842	342	330	PSCC	GA	1968-9	1976-12	1979-7	1989-8
	US -018	GE VALLECITOS	BWR	50	24	24	GE	GE	1956-1	1957-10	1957-10	1963-12

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020 — continued

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
USA	US -213	HADDAM NECK	PWR	1825	603	560	CYAPC	WH	1964-5	1967-8	1968-1	1996-12
	US -077	HALLAM	X	256	84	75	AEC/NPPD	GE	1959-1	1963-9	1963-11	1964-9
	US -133	HUMBOLDT BAY	BWR	220	65	63	PG&E	GE	1960-11	1963-4	1963-8	1976-7
	US -013	INDIAN POINT-1	PWR	615	277	257	ENTERGY	B&W	1956-5	1962-9	1962-10	1974-10
	US -247	INDIAN POINT-2	PWR	3216	1067	998	ENTERGY	WH	1966-10	1973-6	1974-8	2020-4
	US -305	KEWAUNEE	PWR	1772	595	566	DOMINION	WH	1968-8	1974-4	1974-6	2013-5
	US -409	LACROSSE	BWR	165	55	48	DPC	AC	1963-3	1968-4	1969-11	1987-4
	US -309	MAINE YANKEE	PWR	2630	900	860	MYAPC	CE	1968-10	1972-11	1972-12	1997-8
	US -245	MILLSTONE-1	BWR	2011	684	641	DOMINION	GE	1966-5	1970-11	1971-3	1998-7
	US -219	OYSTER CREEK	BWR	1930	652	619	EXELON	GE	1964-12	1969-9	1969-12	2018-9
	US -130	PATHFINDER	BWR	220	63	59	NMC	AC	1959-1	1966-7	1966-8	1967-10
	US -171	PEACH BOTTOM-1	HTGR	115	42	40	EXELON	GA	1962-2	1967-1	1967-6	1974-11
	US -293	PILGRIM-1	BWR	2028	711	677	ENTERGY	GE	1968-8	1972-7	1972-12	2019-5
	US -012	PIQUA	X	46	12	12	CofPiqua	GE	1960-1	1963-7	1963-11	1966-1
	US -312	RANCHO SECO-1	PWR	2772	917	873	SMUD	B&W	1969-4	1974-10	1975-4	1989-6
	US -206	SAN ONOFRE-1	PWR	1347	456	436	SCE	WH	1964-5	1967-7	1968-1	1992-11
	US -361	SAN ONOFRE-2	PWR	3438	1127	1070	SCE	CE	1974-3	1982-9	1983-8	2013-6
	US -362	SAN ONOFRE-3	PWR	3438	1127	1080	SCE	CE	1974-3	1983-9	1984-4	2013-6
	US -146	SAXTON	PWR	24	3	3	SNEC	GE	1960-1	1967-3	1967-3	1972-5
	US -001	SHIPPINGPORT	PWR	236	68	60	DOE DUQU	WH	1954-1	1957-12	1958-5	1982-10
	US -322	SHOREHAM	BWR	2436	849	820	LIPA	GE	1972-11	1986-8	1986-8	1989-5
	US -289	THREE MILE ISLAND-1	PWR	2568	880	819	EXELON	B&W	1968-5	1974-6	1974-9	2019-9
	US -320	THREE MILE ISLAND-2	PWR	2772	959	880	GPU	B&W	1969-11	1978-4	1978-12	1979-3
	US -344	TROJAN	PWR	3411	1155	1095	PORTGE	WH	1970-2	1975-12	1976-5	1992-11
	US -271	VERMONT YANKEE	BWR	1912	635	605	ENTERGY	GE	1967-12	1972-9	1972-11	2014-12
	US -29	YANKEE NPS	PWR	600	180	167	YAEC	WH	1957-11	1960-11	1961-7	1991-10
	US -295	ZION-1	PWR	3250	1085	1040	EXELON	WH	1968-12	1973-6	1973-12	1998-2

TABLE 16. REACTORS PERMANENTLY SHUT DOWN, 31 DEC. 2020 — continued

Country	Reactor		Type	Capacity [MW]			Operator	NSSS	Construction	Grid	Commercial	Shutdown
	Code	Name		Thermal	Gross	Net		Supplier	Start	Connection	Operation	
USA	US -304	ZION-2	PWR	3250	1085	1040	EXELON	WH	1968-12	1973-12	1974-9	1998-2
Note: Status as of 31 December 2020, 192 reactors (87248 MW(e)) have been permanently shut down, including 2 units (1208MW(e)) in Taiwan, China.												
TAIWAN,CHINA	TW -1	CHINSHAN-1	BWR	1840	636	604	TPC	GE	1972-6	1977-11	1978-12	2018-12
	TW -2	CHINSHAN-2	BWR	1840	636	604	TPC	GE	1973-12	1978-12	1979-7	2019-7

TABLE 17. REACTORS IN DECOMMISSIONING PROCESS OR DECOMMISSIONED, 31 DEC. 2020

Country	Reactor Ref. no.	Unit	Shutdown	Shutdown reason	Decom. strategy	Current decom. phase	Current fuel managemt phase	Decom. licensee	License Expiration
ARMENIA	AM -18	ARMENIAN-1	1989-2	Others	Other			ANPPCJSC	
BELGIUM	BE -1	BR-3	1987-6	2,5	ID	4,10	4	CEN/SCK	
BULGARIA	BG -1	KOZLODUY-1	2002-12	Others	Dd+PD+SE	6	3,6,7	E-03492	2031
	BG -2	KOZLODUY-2	2002-12	Others	Dd+PD+SE	6	3,6,7	E-03493	2031
	BG -3	KOZLODUY-3	2006-12	Others	Dd+PD+SE	6	3,7	E-00174	2031
	BG -4	KOZLODUY-4	2006-12	Others	Dd+PD+SE		3,6,7	E-0008	2031
CANADA	CA -1	ROLPHTON NPD	1987-8	2	Dd+PD+SE	8		AECL	
	CA -2	DOUGLAS POINT	1984-5	2	Dd+SE	8	7	AECL	
	CA -3	GENTILLY-1	1977-6	2	Dd+PD+SE	8	7	AECL/HQ	
	CA -5	PICKERING-2	2007-5	2	Dd+SE			OPG	
	CA -6	PICKERING-3	2008-10	2	Dd+SE			OPG	
FRANCE	FR -10	PHENIX	2010-2	Others	ID			-	
	FR -2	CHINON A-1	1973-4	1,2	ID			EDF	
	FR -24	SUPER-PHENIX	1998-12	Others	ID	9	3,6	NERSA	
	FR -3	CHINON A-2	1985-6	1,2	ID	9		EDF	2025
	FR -4	CHINON A-3	1990-6	1,2	ID	9		EDF	
	FR -5	CHOOZ-A (ARDENNES)	1991-10	Others	ID			SENA	2019
	FR -6	EL-4 (MONTS D'ARREE)	1985-7	1,2	ID			EDF	2015
	FR -7	ST. LAURENT A-1	1990-4	1,2	ID			EDF	2027
	FR -8	ST. LAURENT A-2	1992-5	1,2	ID			EDF	2025
	FR -9	BUGEY-1	1994-5	1,2	ID	9,11		EDF	2020
GERMANY	DE -1	VAK KAHL	1985-11	Others	Other			VAK	2010
	DE -10	STADE	2003-11	2	ID	3,4,6,9,10,15		PElektra	2026
	DE -11	NIEDERAICHBACH	1974-7	6	Other			KIT	1995
	DE -12	BIBLIS-A	2011-8	7	ID		3	RWE	
	DE -13	BRUNSBUETTEL	2011-8	7	ID	1	3	KKB	
	DE -14	PHILIPPSBURG-1	2011-8	7	ID	1	3	EnKK	

TABLE 17. REACTORS IN DECOMMISSIONING PROCESS OR DECOMMISSIONED, 31 DEC. 2020 — continued

Country	Reactor Ref. no.	Unit	Shutdown	Shutdown reason	Decom. strategy	Current decom. phase	Current fuel managemt phase	Decom. licensee	License Expiration
GERMANY	DE -15	NECKARWESTHEIM-1	2011-8	7	ID	1	3	EnKK	
	DE -16	ISAR-1	2011-8	7	ID	2,9	3	PElektra	2038
	DE -17	UNTERWESER	2011-8	7	ID	9	3	E.ON	2035
	DE -18	BIBLIS-B	2011-8	7	ID	2	3	RWE	
	DE -19	THTR-300	1988-9	2	Dd+SE		4	HKG	
	DE -2	MZFR	1984-5	Others	Other			KTE	
	DE -20	KRUEMMEL	2011-8	7	ID	1	3	KKK	
	DE -22	MUELHEIM-KAERLICH	1988-9	7	Other			RWE	
	DE -23	GRAFENRHEINFELD	2015-6	7	ID	2	3	PElektra	2035
	DE -26	GUNDREMMINGEN-B	2017-12	7	ID		3	RWE/E.ON	
	DE -3	GUNDREMMINGEN-A	1977-1	6,8	ID		3	KGG	
	DE -4	AVR JUELICH	1988-12	7	ID	3,4		xxxx	
	DE -5	OBRIGHEIM	2005-5	7	ID			EnKK	
	DE -501	RHEINSBERG	1990-6	7	ID	9	4	G 01 KKR	
	DE -502	GREIFSWALD-1	1990-2	6	ID	3,9	4	G 01 KGR	
	DE -503	GREIFSWALD-2	1990-2	6	ID	3,9	4	G 01 KGR	
	DE -504	GREIFSWALD-3	1990-2	6	ID	3,9	4	G 01 KGR	
	DE -505	GREIFSWALD-4	1990-7	6	ID	3	4	G 01 KGR	
	DE -506	GREIFSWALD-5	1989-11	6	ID	1,3,9	4	G 01 KGR	
	DE -6	LINGEN	1977-1	2,5	ID	1,3,4,9		RWE AG	
	DE -7	HDR GROSSWELZHEIM	1971-4	5	Other			KIT	1998
	DE -8	KNK II	1991-8	5	Other			KTE	
	DE -9	WUERGASSEN	1994-8	2	ID	3		E.ON	2029
ITALY	IT -1	LATINA	1987-12	7,Others	Other	3,6		SOGIN	2043
	IT -2	GARIGLIANO	1982-3	3,4,Others	ID	3,6,9		SOGIN	2040
	IT -3	ENRICO FERMI	1990-7	7,Others	ID	6		SOGIN	2037
	IT -4	CAORSO	1990-7	7,Others	ID	3,4,9		SOGIN	2038

TABLE 17. REACTORS IN DECOMMISSIONING PROCESS OR DECOMMISSIONED, 31 DEC. 2020 — continued

Country	Reactor Ref. no.	Unit	Shutdown	Shutdown reason	Decom. strategy	Current decom. phase	Current fuel managemt phase	Decom. licensee	License Expiration
JAPAN	JP -1	JPDR	1976-3	Others	ID	3		JAERI	2002
	JP -10	FUKUSHIMA-DAIICHI-3	2011-5	Others	Other			TEPCO DL	
	JP -11	HAMAOKA-1	2009-1	6	Dd+SE	3,6,7,14		CHUBU DL	2037
	JP -12	GENKAI-1	2015-4	3	Dd+PD+SE	9		KYUSHU	
	JP -15	OHI-1	2018-3	3	Dd+PD+SE	3,6,8		KEPCO	2049
	JP -16	FUKUSHIMA-DAIICHI-4	2011-5	Others	Other			TEPCO DL	
	JP -17	FUKUSHIMA-DAIICHI-5	2013-12	Others	Other			TEPCO DL	
	JP -18	FUKUSHIMA-DAIICHI-6	2013-12	Others	Other			TEPCO DL	
	JP -19	OHI-2	2018-3	3	Dd+PD+SE	3,6,8		KEPCO	2049
	JP -2	TOKAI-1	1998-3	2	Dd+PD+SE	3,4,6,7,9		JAPCO	2030
	JP -20	FUGEN ATR	2003-3	2	ID	1,6	5	JAEA	2034
	JP -23	IKATA-1	2016-5	Others	Dd+SE	7	2	SHIKOKU	2056
	JP -24	HAMAOKA-2	2009-1	6	Dd+SE	3,6,7,14		CHUBU DL	2037
	JP -27	GENKAI-2	2019-4	3	Dd+PD+SE			KYUSHU	
	JP -3	TSURUGA-1	2015-4	3	Dd+PD+SE	3,4,6,7		JAPCO	2040
	JP -31	MONJU	2017-12	7	ID	1,2	1	...	2047
	JP -32	IKATA-2	2018-5	Others	Other	1		SHIKOKU	
	JP -4	MIHAMA-1	2015-4	3	Dd+PD+SE	3,6,8		KEPCO	2046
	JP -5	FUKUSHIMA-DAIICHI-1	2011-5	Others	Other			TEPCO DL	
	JP -6	MIHAMA-2	2015-4	3	Dd+PD+SE	3,6,8		KEPCO	2046
	JP -7	SHIMANE-1	2015-4	6	Other			CHUGOKU	
	JP -9	FUKUSHIMA-DAIICHI-2	2011-5	Others	Other			TEPCO DL	
KAZAKHSTAN	KZ -10	AKTAU	1999-4	2,5	Dd+PD+SE	1,6	4	MAEC-KAZ	
KOREA,REP.OF	KR -1	KORI-1	2017-6	7,Others	ID	1		KHNP	
	KR -3	WOLSONG-1	2019-12	Others	ID			KHNP	
LITHUANIA	LT -46	IGNALINA-1	2004-12	7,Others	ID	3,9,10,12	3	INPP	2038
	LT -47	IGNALINA-2	2009-12	7,Others	ID	3,9,10,12	3	INPP	2038

TABLE 17. REACTORS IN DECOMMISSIONING PROCESS OR DECOMMISSIONED, 31 DEC. 2020 — continued

Country	Reactor Ref. no.	Unit	Shutdown	Shutdown reason	Decom. strategy	Current decom. phase	Current fuel managemt phase	Decom. licensee	License Expiration
NETHERLANDS	NL -1	DODEWAARD	1997-3	2,Others	Dd+SE	7		BV GKN	2055
RUSSIA	RU -3	BELOYARSK-1	1983-1	Others	Other			EA	
	RU -4	NOVOVORONEZH-1	1988-2	Others	Other			EA	
	RU -6	BELOYARSK-2	1990-1	Others	Other			EA	
	RU -8	NOVOVORONEZH-2	1990-8	Others	Other			EA	
SLOVAKIA	SK -1	BOHUNICE A1	1977-2	4	Dd+PD+SE	3,6		JAVYS	
	SK -2	BOHUNICE-1	2006-12	7	ID	3,4,9		JAVYS	
	SK -3	BOHUNICE-2	2008-12	7	ID	3,4,9		JAVYS	
SPAIN	ES -1	JOSE CABRERA-1	2006-4	Others	ID		7	UFG	2015
	ES -2	SANTA MARIA DE GARONA	2017-8	Others	ID	1,3,4		NN	2031
	ES -3	VANDELLOS-1	1990-7	4	Dd+PD+SE	8		ENRESA	2032
SWEDEN	SE -1	AGESTA	1974-6	2	Dd+SE	3,7	4	VAB	
	SE -2	OSKARSHAMN-1	2017-6	2	ID	3,4,6,9,11,12	4	OKG	2050
	SE -3	OSKARSHAMN-2	2016-12	2	ID	3,4,9,11,12	4	OKG	2050
	SE -6	BARSEBACK-1	1999-11	Others	Other	3,4,9	4	BKAB	2033
	SE -8	BARSEBACK-2	2005-5	Others	Other	3,4,9	4	BKAB	2033
SWITZERLAND	CH -2	MUEHLEBERG	2019-12	2	ID		1,4	BKW	
	CH -8	LUCENS	1969-1	4	Dd+SE	1		EOS	2004
UK	GB -10A	SIZEWELL A-1	2006-12	2,8	Dd+SE	8		Magnox S	2110
	GB -10B	SIZEWELL A-2	2006-12	2,8	Dd+SE	8		Magnox S	2110
	GB -12	WINFRITH SGHWR	1990-9	Others	ID			UKAEA	2019
	GB -14	DOUNREAY DFR	1977-3	Others	Dd+PD+SE	5		DSR	2333
	GB -15	DOUNREAY PFR	1994-3	Others	Dd+PD+SE	5		Magnox N	2333
	GB -1A	CALDER HALL-1	2003-3	2,8	Dd+PD+SE	8		SL	2117
	GB -1B	CALDER HALL-2	2003-3	2,8	Dd+PD+SE	8		SL	2117
	GB -1C	CALDER HALL-3	2003-3	2,8	Dd+PD+SE	8		SL	2117
	GB -1D	CALDER HALL-4	2003-3	2,8	Dd+PD+SE	8		SL	2117

TABLE 17. REACTORS IN DECOMMISSIONING PROCESS OR DECOMMISSIONED, 31 DEC. 2020 — continued

Country	Reactor Ref. no.	Unit	Shutdown	Shutdown reason	Decom. strategy	Current decom. phase	Current fuel managemt phase	Decom. licensee	License Expiration
UK	GB -2A	CHAPELCROSS-1	2004-6	2,8	Dd+PD+SE	8		Magnox N	2128
	GB -2B	CHAPELCROSS-2	2004-6	2,8	Dd+PD+SE	8		Magnox N	2128
	GB -2C	CHAPELCROSS-3	2004-6	2,8	Dd+PD+SE	8		Magnox N	2128
	GB -2D	CHAPELCROSS-4	2004-6	2,8	Dd+PD+SE	8		Magnox N	2128
	GB -3A	BERKELEY-1	1989-3	2,8	Dd+SE	8		Magnox S	2083
	GB -3B	BERKELEY-2	1988-10	2,8	Dd+SE	8		Magnox S	2083
	GB -4A	BRADWELL-1	2002-3	2,8	Dd+SE	8		Magnox S	2104
	GB -4B	BRADWELL-2	2002-3	2,8	Dd+SE	8		Magnox S	2104
	GB -5	WINDSCALE AGR	1981-4	Others	Dd+PD+SE	7		SL	2065
	GB -6A	HUNTERSTON A-1	1990-3	2,8	Dd+PD+SE	8		Magnox N	2090
	GB -6B	HUNTERSTON A-2	1989-12	2,8	Dd+PD+SE	8		Magnox N	2090
	GB -7A	HINKLEY POINT A-1	2000-5	2,8	Dd+PD+SE	8		Magnox S	2104
	GB -7B	HINKLEY POINT A-2	2000-5	2,8	Dd+PD+SE	8		Magnox S	2104
	GB -8A	TRAWSFYNYDD-1	1991-2	2,8	Dd+PD+SE	8		Magnox N	2098
	GB -8B	TRAWSFYNYDD-2	1991-2	2,8	Dd+PD+SE	8		Magnox N	2098
	GB -9A	DUNGENESS A-1	2006-12	2,8	Dd+PD+SE	8		Magnox S	2111
	GB -9B	DUNGENESS A-2	2006-12	2,8	Dd+PD+SE	8		Magnox S	2111
USA	US -001	SHIPPINGPORT	1982-10	3	ID			DOE DUQU	1989
	US -011	ELK RIVER	1968-2	1,Others	ID			RCPA	1974
	US -012	PIQUA	1966-1	4,5	ISD	11		CofPiqua	
	US -013	INDIAN POINT-1	1974-10	5	Dd+PD+SE			ENTERGY	
	US -014	BONUS	1968-6	5,6	ISD			DOE/PRWR	1970
	US -018	GE VALLECITOS	1963-12	1	Dd+SE			GE&PGEC	
	US -077	HALLAM	1964-9	5	Dd+SE			AEC&NPPD	1971
	US -10	DRESDEN-1	1978-10	6	Dd+SE	9,11	7	EXELON	
	US -130	PATHFINDER	1967-10	5	Dd+SE	11		NMC	
	US -133	HUMBOLDT BAY	1976-7	5	Dd+PD+SE	3,4,6		PG&E	2013

TABLE 17. REACTORS IN DECOMMISSIONING PROCESS OR DECOMMISSIONED, 31 DEC. 2020 — continued

Country	Reactor Ref. no.	Unit	Shutdown	Shutdown reason	Decom. strategy	Current decom. phase	Current fuel managemt phase	Decom. licensee	License Expiration
USA	US -144	CVTR	1967-1	7,Others	Dd+SE			CVPA	2009
	US -146	SAXTON	1972-5	Others	ID			GPUNC	2005
	US -155	BIG ROCK POINT	1997-8	2,Others	ID		7	CPC	2007
	US -16	FERMI-1	1972-11	4,5	Dd+SE	9,11		DTEDISON	2025
	US -171	PEACH BOTTOM-1	1974-11	1	Dd+SE	1,9		EXELON	
	US -206	SAN ONOFRE-1	1992-11	Others	Dd+PD+SE	4		SCE	2008
	US -213	HADDAM NECK	1996-12	6	ID	4,6		CYAPC	2007
	US -245	MILLSTONE-1	1998-7	6	Dd+PD+SE			DOMINRES	
	US -247	INDIAN POINT-2	2020-4	Others	ISD			ENTERGY	
	US -267	FORT ST. VRAIN	1989-8	1,Others	ID			PSCC	1996
	US -285	FORT CALHOUN-1	2016-10	2	Dd+SE			OPPD	
	US -29	YANKEE NPS	1991-10	5,7	ID	4,6		YAEC	2005
	US -295	ZION-1	1998-2	5,6	Dd+PD+SE	1,9		CommonEd	
	US -302	CRYSTAL RIVER-3	2013-2	5	Dd+PD+SE			DUKEENER	
	US -304	ZION-2	1998-2	5,6	Dd+PD+SE	1,9		COMMED	
	US -305	KEWAUNEE	2013-5	2,6	Dd+SE			DOMINRES	
	US -309	MAINE YANKEE	1997-8	6	ID	4	7	MYAPC	2005
	US -312	RANCHO SECO-1	1989-6	5,6	Dd+PD+SE			SMUD	2009
	US -320	THREE MILE ISLAND-2	1979-3	4,5	Other	9,11	4	GPU	
	US -322	SHOREHAM	1989-5	7,Others	ID			LIPA	1995
	US -331	DUANE ARNOLD-1	2020-10	5	Dd+SE			NEXTERA	
	US -344	TROJAN	1992-11	6	Dd+PD+SE	9		PORTGE	2005
	US -409	LACROSSE	1987-4	2	Dd+PD+SE	9	7	DPC	

TABLE 17. REACTORS IN DECOMMISSIONING PROCESS OR DECOMMISSIONED, 31 DEC. 2020 — continued

Table 17: Definitions for reactors in decommissioning process or decommissioned

Shutdown reason	Description
1	The technology or process being used became obsolete
2	The process was no longer profitable
3	Changes in licensing requirements
4	After an operating incident
5	Other technological reasons (please mention them below)
6	Other economical reasons (please mention them below)
7	Public acceptance or political reasons
8	After major component failure or deterioration
10	Licence terminated - legal act at the end of the decommissioning process (and site released for restricted/unrestricted use)
Other	None of the above

Decom. strategy	Description
ID	Immediate dismantling and removal of all radioactive materials
Dd+SE	Deferred dismantling, placing all radiological areas into safe enclosure
Dd+PD+SE	Deferred dismantling, including partial dismantling and placing remaining radiological areas into safe enclosure
ISD	In situ disposal, involving encapsulation of radioactive materials and subsequent restriction of access
Other	None of the above

Fuel Management	Description
13	Transfer to a reactor facility
23	Transfer away from a reactor facility
33	Storage in an on-site facility
43	Storage in an off-site facility
53	Shipment to a reprocessing plant
63	Underwater storage period
73	Dry storage period
83	Encapsulation
93	Transfer for storage in away from reactor facility (AFR-RS) on reactor site - Wet Storage Technology
103	Transfer for storage in away from reactor facility (AFR-OS) off reactor site - Wet Storage Technology

Current decom. phase	Description
1	Drawing up the Final Decommissioning Plan
2	Reactor core defuelling (See also Fuel Management)
3	Waste conditioning on-site - only for decommissioning waste
4	Waste shipment off-site - only for decommissioning waste
5	Safe enclosure preparation
6	Partial dismantling
7	Active safe enclosure period
8	Passive safe enclosure period
9	Final dismantling
10	Final survey
11	Licence terminated - legal act at the end of the decommissioning process (and site released for restricted/unrestricted use)
12	Transition phase following permanent shutdown, including reactor core defuelling (See also Fuel Management) and strategy preparation
13	Preparation for dismantling of major equipment and buildings
14	Safe enclosure period
15	Demolition (if disconnected from nuclear dismantling / conventional demolition)

TABLE 18. PERFORMANCE FACTORS BY REACTOR CATEGORY (2018–2020)

Reactor Category	Reactors reporting to IAEA PRIS (see note)						
	Number of Units	Availability Factor (EAF) %	Planned Cap.Loss Factor (PCL) %	Capacity Factor (UCF) %	Forced Loss Rate (FLR) %	Operating Factor (OF) %	Load Factor (LF) %
PWR	307	79.3	14.8	80.9	2.5	80	78.2
PWR < 600 MWe	43	77.1	20.2	77.8	1.6	78.9	76.6
PWR >= 600 MWe	264	79.4	14.4	81.1	2.6	80.2	78.4
BWR	75	63.8	34.5	64.1	1.8	64	63
BWR < 600 MWe	5	33	65.3	33.6	2.9	46.1	33.1
BWR >= 600 MWe	70	64.3	33.9	64.7	1.8	65.1	63.6
PHWR	49	76.8	18.1	77.4	4.1	77.5	76.8
PHWR < 600 MWe	27	79	16.3	80.1	3.9	77.1	79.1
PHWR >= 600 MWe	22	75.6	19	76.1	4.2	78	75.7
LWGR	15	73.3	23.8	73.8	2.6	75.7	74.5
LWGR < 600 MWe	4	76.7	23.2	76.7	0	75.6	46.9
LWGR >= 600 MWe	11	73.3	23.8	73.8	2.6	75.8	74.6
GCR	14	64.2	10.7	64.4	4.6	66.5	63.8
FBR	2	74.2	22.5	74.9	2.6	77.8	75.5
TOTAL	**462**	**75.9**	**18.7**	**77.2**	**2.5**	**76.6**	**75.1**

Notes:

1. Reactors shut down during 2018 to 2020 (26 units) are considered.

2. Nuclear power operating statistics do not include outage data from French reactor units as information for these units was not available by the time of publication.

TABLE 19. FULL OUTAGE STATISTICS DURING 2020

Reactor Type	Number of Units	Full Outage Hours per Operating Experience Year	% Planned Outages	% Unplanned Outages	% External Outages
PWR	300	1278	83.9	9.6	6.5
PWR < 600 MWe	41	1499	86.3	10.8	2.9
PWR >= 600 MWe	259	1243	83.5	9.3	7.2
BWR	65	3084	94	5.4	0.6
BWR < 600 MWe	3	7491	93.7	6.3	0
BWR >= 600 MWe	62	2871	94	5.3	0.7
PHWR	48	1791	80.7	17.4	1.9
PHWR < 600 MWe	27	1898	78.5	19.5	2
PHWR >= 600 MWe	21	1654	84.1	14.3	1.6
LWGR	13	1782	99	1	0
LWGR < 600 MWe	3	1784	99.7	0.3	0
LWGR >= 600 MWe	10	1782	98.8	1.2	0
GCR	14	3262	27.6	72.4	0
FBR	2	1463	97.6	2.4	0
ALL REACTORS	**442**	**1678**	**83.3**	**12.9**	**3.8**

Notes:

1. Only reactors in commercial operation are considered.
2. Reactors shut down during 2020 (4 unit(s)) are considered.
3. Nuclear power operating statistics do not include outage data from French reactor units as information for these units was not available by the time of publication.

TABLE 20. DIRECT CAUSES OF FULL OUTAGES DURING 2020

Direct Outage Cause	Planned Full Outages				Unplanned Full Outages			
	Energy Lost		Time Lost		Energy Lost		Time Lost	
	GW.h	%	Hours	%	GW.h	%	Hours	%
Plant equipment problem/failure					12853	43.53	24982	61.34
Refuelling without maintenance	54773	9.82	55248	8.42				
Inspection, maintenance or repair combined with refuelling	242960	43.57	281584	42.91				
Inspection, maintenance or repair without refuelling	40154	7.2	75166	11.45				
Testing of plant systems or components	1851	0.33	2432	0.37	13	0.04	15	0.04
Major backfitting, refurbishment or upgrading activities with refuelling	9473	1.7	14021	2.14				
Major backfitting, refurbishment or upgrading activities without refuelling	207125	37.14	216887	33.05				
Nuclear regulatory requirements	411	0.07	2057	0.31	2	0.01	11	0.03
Human factor related					1028	3.48	1246	3.06
Fuel management limitation (including high flux tilt, stretch out or coast-down operation)					268	0.91	248	0.61
Other	874	0.16	8859	1.35	15360	52.02	14228	34.93
TOTAL	**557621**	**100**	**656254**	**100**	**29524**	**100**	**40730**	**100**

Notes:

1. Only reactors which have achieved full commercial operation in or before 2020 are counted.

2. Nuclear power operating statistics do not include outage data from French reactor units as information for these units was not available by the time of publication.

TABLE 21. DIRECT CAUSES OF FULL OUTAGES (2016–2020)

Direct Outage Cause	Planned Full Outages				Unplanned Full Outages			
	Energy Lost		Time Lost		Energy Lost		Time Lost	
	GW.h	%	Hours	%	GW.h	%	Hours	%
Plant equipment problem/failure					227170	88.49	277135	89.92
Refuelling without maintenance	172880	4.94	171627	4.28				
Inspection, maintenance or repair combined with refuelling	1639800	46.83	1829778	45.59				
Inspection, maintenance or repair without refuelling	172168	4.92	310844	7.75				
Testing of plant systems or components	15602	0.45	14769	0.37	699	0.27	921	0.30
Major backfitting, refurbishment or upgrading activities with refuelling	104127	2.97	128804	3.21				
Major backfitting, refurbishment or upgrading activities without refuelling	1388218	39.64	1499170	37.35				
Nuclear regulatory requirements	1801	0.05	4350	0.11	5397	2.10	5992	1.94
Human factor related					6976	2.72	7780	2.52
Fire					542	0.21	704	0.23
Fuel management limitation (including high flux tilt, stretch out or coast-down operation)	1542	0.04	1506	0.04	368	0.14	347	0.11
Other	5804	0.17	52616	1.31	15579	6.07	15315	4.97
TOTALS	**3501942**	**100**	**4013464**	**100**	**256731**	**100**	**308194**	**100**

Notes:

1. Only reactors which have achieved full commercial operation in or before 2020 are counted.

2. Nuclear power operating statistics do not include outage data from French reactor units as information for these units was not available by the time of publication.

TABLE 22. COUNTRIES: ABBREVIATIONS AND SUMMARY

Country Code	Full Name	Number of reactors, as of 31 Dec. 2020				
		Under construction	Operational	Long term shutdown	Shutdown	Planned
AR	ARGENTINA	1	3			
AM	ARMENIA		1		1	
BD	BANGLADESH	2				
BY	BELARUS	1	1			
BE	BELGIUM		7		1	
BR	BRAZIL	1	2			
BG	BULGARIA		2		4	
CA	CANADA		19		6	
CN	CHINA	13	50			29
CZ	CZECH REPUBLIC		6			
FI	FINLAND	1	4			1
FR	FRANCE	1	56		14	
DE	GERMANY		6		30	
HU	HUNGARY		4			2
IN	INDIA	7	22			2
IR	IRAN, ISLAMIC REPUBLIC OF	1	1			2
IT	ITALY				4	
JP	JAPAN	2	33		27	9
KZ	KAZAKHSTAN				1	
KR	KOREA, REPUBLIC OF	4	24		2	
LT	LITHUANIA				2	
MX	MEXICO		2			
NL	NETHERLANDS		1		1	
PK	PAKISTAN	2	5			
RO	ROMANIA		2			
RU	RUSSIA	3	38		9	20
SK	SLOVAKIA	2	4		3	

TABLE 22. COUNTRIES: ABBREVIATIONS AND SUMMARY — continued

Country Code	Full Name	Number of reactors, as of 31 Dec. 2020				
		Under construction	Operational	Long term shutdown	Shutdown	Planned
SI	SLOVENIA		1			
ZA	SOUTH AFRICA		2			
ES	SPAIN		7		3	
SE	SWEDEN		6		7	
CH	SWITZERLAND		4		2	
TR	TURKEY	2				2
UA	UKRAINE	2	15		4	
AE	UNITED ARAB EMIRATES	3	1			
GB	UNITED KINGDOM	2	15		30	
US	UNITED STATES OF AMERICA	2	94		39	
TOTAL		**52**	**442**		**192**	**67**

Note:

The total includes the following data from Taiwan, China

— 4 units in operation; 2 units in shutdown;

TABLE 23. REACTOR TYPES: ABBREVIATIONS AND SUMMARY

Type Code	Type	Under construction	Operational	Long term shutdown	Shutdown
BWR	Boiling Light-Water Cooled and Moderated Reactor	2	63		52
FBR	Fast Breeder Reactor	2	3		8
GCR	Gas Cooled, Graphite Moderated Reactor		14		38
HTGR	High Temperature Gas Cooled Reactor	1			4
HWGCR	Heavy-Water Moderated, Gas Cooled Reactor				4
HWLWR	Heavy-Water Moderated, Boiling Light-Water Cooled Reactor				2
LWGR	Light-Water Cooled, Graphite Moderated Reactor		12		12
PHWR	Pressurized Heavy-Water Moderated and Cooled Reactor	4	48		9
PWR	Pressurized Light-Water Moderated and Cooled Reactor	43	302		60
SGHWR	Steam Generating Heavy-Water Reactor				1
X	Other				2
TOTAL		**52**	**442**		**192**

TABLE 24. OPERATORS: ABBREVIATIONS AND SUMMARY

Operator Code	Full Name	Under construction	Operational	Long term shutdown	Shutdown
AEC/NPPD	ATOMIC ENERGY COMMISSION AND NEBRASKA PUBLIC POWER DISTRICT				1
AEP	AMERICAN ELECTRIC POWER COMPANY, INC.		2		
AmerenUE	AMEREN UE, UNION ELECTRIC COMPANY		1		
ANAV	ASOCIACIÓN NUCLEAR ASCÓ-VANDELLÓS A.I.E. (ENDESA/ID)		3		
ANC	AKKUYU NUCLEAR JOINT STOCK COMPANY	2			
ANPPCJSC	CLOSED JOINT STOCK COMPANY ARMENIAN NPP		1		1
APS	ARIZONA PUBLIC SERVICE CO.		3		
AVR	ARBEITSGEMEINSCHAFT VERSUCHSREAKTOR GMBH				1
Axpo AG	KERNKRAFTWERK BEZNAU CH-5312 DÖTTINGEN		2		
BelNPP	REPUBLICAN UNITARY ENTERPRISE "BELARUSIAN NUCLEAR POWER PLANT"	1	1		
BHAVINI	BHARATIYA NABHIKIYA VIDYUT NIGAM LIMITED	1			
BKAB	BARSEBÄCK KRAFT AB				2
BKW	BKW ENERGIE AG				1
BRUCEPOW	BRUCE POWER		8		
BV GKN	BV GEMEENSCHAPPELIJKE KERNENERGIECENTRALE NEDERLAND (BV GKN)				1
CEA/EDF	COMMISSARIAT À L'ENERGIE ATOMIQUE (80%) ELECTRICITÉ DE FRANCE (20%)				1
CEN/SCK	CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE / STUDIECENTRUM VOOR KERNENERGIE				1
CEZ	CZECH POWER CO., CEZ A.S.		6		
CFE	COMISION FEDERAL DE ELECTRICIDAD		2		
CGCNP	CGN CANGNAN NUCLEAR CO.,LTD	1			
CHUBU	CHUBU ELECTRIC POWER CO., INC.		3		2
CHUGOKU	THE CHUGOKU ELECTRIC POWER CO., INC.	1	1		1
CIAE	CHINA INSTITUTE OF ATOMIC ENERGY		1		
CNAT	CENTRALES NUCLEARES ALMARAZ-TRILLO (ID/UFG/ENDESA/HC/NUCLENOR)		3		
CNEA	COMISION NACIONAL DE ENERGIA ATOMICA	1			
CNNC	CHINA NATIONAL NUCLEAR CORPORATION	1			

TABLE 24. OPERATORS: ABBREVIATIONS AND SUMMARY — continued

Operator Code	Full Name	Under construction	Operational	Long term shutdown	Shutdown
CNNO	CNNC NUCLEAR OPERATION MANAGEMENT COMPANY LIMITED		1		
CofPiqua	CITY OF PIQUA GOVERNMENT				1
COGEMA	COMPAGNIE GENERALE DES MATIERES NUCLEAIRES				2
CPC	CONSUMERS POWER CO.				1
CVPA	CAROLINAS-VIRGINIA NUCLEAR POWER ASSOC.				1
CYAPC	CONNECTICUT YANKEE ATOMIC POWER CO.				1
DNMC	DAYA BAY NUCLEAR POWER OPERATIONS AND MANAGEMENT CO, LTD.		6		
DOE DUQU	DEPARTMENT OF ENERGY AND DUQUESNE LIGHT CO.				1
DOE/PRWR	DOE & PUERTO RICO WATER RESOURCES				1
DOMINION	DOMINION ENERGY		6		2
DPC	DAIRYLAND POWER COOPERATIVE				1
DTEDISON	DETROIT EDISON CO.		1		1
DUKEENER	DUKE ENERGY CORP.		7		
E.ON	E.ON KERNKRAFT GMBH				4
EBL	ENGIE ELECTRABEL		3		
EBL+EDF	ENGIE ELECTRABEL + EDF BELGIUM + EDF LUMINUS		4		
EDF	ÉLECTRICITÉ DE FRANCE	1	56		10
EDF UK	EDF ENERGY		15		
EDF-CGN	EDF ENERGY - CHINA GENERAL NUCLEAR JOINT VENTURE	2			
ELETROBR	ELETROBRAS ELETRONUCLEAR S.A.	1	2		
EnBW	ENBW KRAFTWERKE AG				1
ENERGYNW	ENERGY NORTHWEST		1		
EnKK	ENBW KERNKRAFT GMBH		1		3
ENTERGY	ENTERGY NUCLEAR OPERATIONS, INC.		8		4
EOS	ENERGIE DE L'OUEST SUISSE				1
EPDC	ELECTRIC POWER DEVELOPMENT CO., LTD.	1			
EPZ	N.V. ELEKTRICITEITS-PRODUKTIEMAATSCHAPPIJ ZUID-NEDERLAND		1		

TABLE 24. OPERATORS: ABBREVIATIONS AND SUMMARY — continued

Operator Code	Full Name	Under construction	Operational	Long term shutdown	Shutdown
ESKOM	ESKOM		2		
EWN	ENERGIEWERKE NORD GMBH				6
EXELON	EXELON GENERATION CO., LLC		21		7
FENOC	FIRST ENERGY NUCLEAR OPERATING CO.		4		
FKA	FORSMARK KRAFTGRUPP AB		3		
FORTUMPH	FORTUM POWER AND HEAT OY (FORMER IVO)		2		
FPL	FLORIDA POWER & LIGHT CO.		4		
FQNP	CNNC FUJIAN FUQING NUCLEAR POWER CO., LTD	1	5		
FSNPC	FUJIAN SANMING NUCLEAR POWER CO., LTD.				
FV	FENNOVOIMA OY				
GE	GENERAL ELECTRIC				1
GFNPC	GUANGXI FANGCHENGGANG NUCLEAR POWER COMPANY, LTD.	2	2		
GPU	GENERAL PUBLIC UTILITIES (OWNED BY FIRSTENERGY CORP.)				1
HDR	HEISSDAMPFREAKTOR-BETRIEBSGESELLSCHAFT MBH.				1
HEPCO	HOKKAIDO ELECTRIC POWER CO., INC.		3		
HIFRENSA	HISPANO-FRANCESA DE ENERGIA NUCLEAR, S.A.				1
HKG	HOCHTEMPERATUR-KERNKRAFTWERK GMBH				1
HNPC	HAINAN NUCLEAR POWER COMPANY		2		
HOKURIKU	HOKURIKU ELECTRIC POWER CO.		2		
HQ	HYDRO QUEBEC				2
HSDNPC	SHANDONG HONGSHIDING NUCLEAR POWER PLANT				
HSNPC	HUANENG SHANDONG SHIDAO BAY NUCLEAR POWER COMPANY, LTD.	1			
HZNP	CGN HUIZHOU NUCLEAR POWER CO.,LTD,	2			
ID	IBERDROLA, S.A.		1		
INPP	IGNALINA NUCLEAR POWER PLANT				2
JAEA	JAPAN ATOMIC ENERGY AGENCY				3
JAPCO	JAPAN ATOMIC POWER CO.		2		2

TABLE 24. OPERATORS: ABBREVIATIONS AND SUMMARY — continued

Operator Code	Full Name	Under construction	Operational	Long term shutdown	Shutdown
JAVYS	JADROVA A VYRADOVACIA SPOLOCNOST /NUCLEAR AND DECOMMISSIONING COMPANY, PLC./				3
JNPC	JIANGSU NUCLEAR POWER CORPORATION	1	5		
KBG	KERNKRAFTWERK-BETRIEBSGESELLSCHAFT MBH				2
KEPCO	KANSAI ELECTRIC POWER CO.		7		4
KGB	KERNKRAFTWERKE GUNDREMMINGEN BETRIEBSGESELLSCHAFT MBH				1
KGG	KERNKRAFTWERK GUNDREMMINGEN GMBH		1		2
KHNP	KOREA HYDRO AND NUCLEAR POWER CO.	4	24		2
KKB	KERNKRAFTWERK BRUNSBÜTTEL GMBH & CO. OHG				1
KKG	KERNKRAFTWERK GÖSGEN-DÄNIKEN AG		1		
KKK	KERNKRAFTWERK KRÜMMEL GMBH & CO. OHG				1
KKL	KERNKRAFTWERK LEIBSTADT		1		
KKN	KERNKRAFTWERK NIEDERAICHBACH GMBH				1
KLE	KERNKRAFTWERKE LIPPE-EMS GMBH		1		
KOZNPP	KOZLODUY NPP, PLC.		2		4
KWL	KERNKRAFTWERK LINGEN GMBH				1
KYUSHU	KYUSHU ELECTRIC POWER CO., INC.		4		2
LFNPC	CGN LUFENG NUCLEAR POWER CO., LTD				
LHNPC	LIAONING HONGYANHE NUCLEAR POWER CO. LTD. (LHNPC)	2	4		
LIPA	LONG ISLAND POWER AUTHORITY				1
LNPC	LIAONIN NUCLEAR POWER COMPANY, LMT.				
LUMINANT	LUMINANT GENERATION COMPANY, LLC		2		
MAEC-KAZ	LIMITED LIABILITY PARTNERSHIP «MANGISTAU ATOMIC ENERGY COMPLEX-KAZATOMPROM»				1
ML	MAGNOX, LTD				22
MSM	MINISTRY OF MEDIUM MACHINE BUILDING OF THE USSR (MINSREDMASH)				1
MTE	MINTOPENERGO OF UKRAINE - MINISTRY OF FUEL AND ENERGY OF UKRAINE				4
MYAPC	MAINE YANKEE ATOMIC POWER CO.				1
NASA	NUCLEOELECTRICA ARGENTINA S.A.		3		

TABLE 24. OPERATORS: ABBREVIATIONS AND SUMMARY — continued

Operator Code	Full Name	Under construction	Operational	Long term shutdown	Shutdown
NAWAH	NAWAH ENERGY COMPANY	3	1		
NBEPC	NEW BRUNSWICK ELECTRIC POWER COMMISSION		1		
NDNP	FUJIAN NINGDE NUCLEAR POWER COMPANY, LTD.		4		
NEK	NUKLEARNA ELEKTRARNA KRŠKO		1		
NEXTERA	NEXTERA ENERGY RESOURCES, LLC		3		1
NMC	NUCLEAR MANAGEMENT CO.				1
NNEGC	STATE ENTERPRISE “NATIONAL NUCLEAR ENERGY GENERATING COMPANY ‘ENERGOATOM”	2	15		
NPCBL	NUCLEAR POWER PLANT COMPANY BANGLADESH LIMITED	2			
NPCIL	NUCLEAR POWER CORPORATION OF INDIA, LTD.	6	22		
NPPDCO	NUCLEAR POWER PRODUCTION AND DEVELOPMENT CO. OF IRAN	1	1		
NPQJVC	NUCLEAR POWER PLANT QINSHAN JOINT VENTURE COMPANY LTD.		4		
NSP	NORTHERN STATES POWER CO. (SUBSIDIARY OF XCEL ENERGY)		3		
NUCLENOR	NUCLENOR, S.A.				1
OH	ONTARIO HYDRO				2
OKG	OKG AKTIEBOLAG		1		2
OPG	ONTARIO POWER GENERATION		10		2
PAEC	PAKISTAN ATOMIC ENERGY COMMISSION	2	5		
PAKS II	MVM PAKS II, LTD.				
PAKS Zrt	PAKS NUCLEAR POWER PLANT, LTD.		4		
PE	PREUSSENELEKTRA KERNKRAFT GMBH&CO KG				1
PElektra	PREUSSENELEKTRA GMBH		3		
PG&E	PACIFIC GAS AND ELECTRIC COMPANY		2		1
PORTGE	PORTLAND GENERAL ELECTRIC CO.				1
PPL_SUSQ	PPL SUSQUEHANNA, LLC		2		
PROGRESS	PROGRESS ENERGY		4		1
PSCC	PUBLIC SERVICE CO. OF COLORADO				1
PSEG	PSEG NUCLEAR, LLC		3		

TABLE 24. OPERATORS: ABBREVIATIONS AND SUMMARY — continued

Operator Code	Full Name	Under construction	Operational	Long term shutdown	Shutdown
QNPC	QINSHAN NUCLEAR POWER COMPANY		2		
RAB	RINGHALS AB		2		2
RCPA	RURAL COOPERATIVE POWER ASSOC.				1
REA	JOINT STOCK COMPANY 'CONCERN ROSENERGOATOM'	3	38		8
RWE	RWE POWER AG				2
SCE	SOUTHERN CALIFORNIA EDISON CO.				3
SCE&G	SOUTH CAROLINA ELECTRIC & GAS CO.		1		
SDNPC	SHANDONG NUCLEAR POWER COMPANY, LTD.		2		
SE	SLOVENSKÉ ELEKTRÁRNE , AS.	2	4		
SENA	SOCIETE D'ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES				1
SHIKOKU	SHIKOKU ELECTRIC POWER CO., INC		1		2
SL	SELLAFIELD LIMITED				4
SMNPC	SANMEN NUCLEAR POWER CO., LTD.		2		
SMUD	SACRAMENTO MUNICIPAL UTILITY DISTRICT				1
SNEC	SAXTON NUCLEAR EXPERIMENTAL REACTOR CORPORATION				1
SNN	SOCIETATEA NATIONALA NUCLEARELECTRICA, S.A.		2		
SNPDP	STATE NUCLEAR POWER DEMONSTRATION PLANT CO., LTD.				
SOGIN	SOCIETA GESTIONE IMPANTI NUCLEARI S.P.A.				4
SOUTHERN	SOUTHERN NUCLEAR OPERATING COMPANY, INC.	2	6		
STP	STP NUCLEAR OPERATING CO.		2		
SVAFO	AB SVAFO				1
TEPCO	TOKYO ELECTRIC POWER COMPANY HOLDINGS, INC.		7		10
TNPJVC	TAISHAN NUCLEAR POWER JOINT VENTURE COMPANY LIMITED		2		
TOHOKU	TOHOKU ELECTRIC POWER CO., INC		3		1
TPC	TAIWAN POWER CO.		4		2
TQNPC	THE THIRD QINSHAN JOINT VENTURE COMPANY, LTD.		2		
TVA	TENNESSEE VALLEY AUTHORITY		7		
TVO	TEOLLISUUDEN VOIMA OYJ	1	2		

TABLE 24. OPERATORS: ABBREVIATIONS AND SUMMARY — continued

Operator Code	Full Name	Under construction	Operational	Long term shutdown	Shutdown
UFG	UNION FENOSA GENERATION, S.A.				1
UKAEA	UNITED KINGDOM ATOMIC ENERGY AUTHORITY				4
VAK	VERSUCHSATOMKRAFTWERK KAHL GMBH				1
WCNOC	WOLF CREEK NUCLEAR OPERATING CORP.		1		
YAEC	YANKEE ATOMIC ELECTRIC CO.				1
YJNPC	YANGJIANG NUCLEAR POWER COMPANY		6		
ZGZEC	CNNP GUODIAN ZHANGZHOU ENERGY CO.,LTD	2			
Not specified	OTHERS				
TOTAL		**52**	**442**		**192**

TABLE 25. NSSS SUPPLIERS: ABBREVIATIONS AND SUMMARY

Supplier Code	Type	Under Construction	Operational	Long term shutdown	Shutdown
A/F/W	ASSOCIATION ACEC,FRAMATOME AND WESTINGHOUSE.				1
ABB ATOM	ABB ATOM (FORMERLY ASEA-ATOM)		4		5
AC	ALLIS CHALMERS				3
ACECOWEN	ACECOWEN (ACEC-COCKERILL-WESTINGHOUSE)		4		
ACLF	(ACECOWEN - CREUSOT LOIRE - FRAMATOME)		1		
AECL	ATOMIC ENERGY OF CANADA, LTD.		7		4
AECL/DAE	ATOMIC ENERGY OF CANADA LTDA AND DEPARTMENT OF ATOMIC ENERGY(INDIA)		1		
AECL/DHI	ATOMIC ENERGY OF CANADA LTD./DOOSAN HEAVY INDUSTRIES & CONSTRUCTION		3		
AEE	ATOMENERGOEXPORT		8		12
AEG	ALLGEMEINE ELEKTRICITAETS-GESELLSCHAFT				1
AEG,GE	ALLGEMEINE ELECTRICITAETS-GESELLSCHAFT, GENERAL ELECTRIC COMPANY (US)				1
AEG,KWU	ALLGEMEINE ELEKTRICITAETS GESELLSCHAFT, KRAFTWERK UNION AG				2
AEM	JSC ATOMENERGOMASH	7	38		4
AMN/GETS	ANSALDO MECCANICO NUCLEARE SPA / GENERAL ELECTRIC TECHNICAL SERVICES CO.				1
APC	ATOMIC POWER CONSTRUCTION, LTD.		2		2
ASEASTAL	ASEA-ATOM / STAL-LAVAL		2		1
ASPALDO	ASPALDO				1
B&W	BABCOCK & WILCOX CO.		5		5
BBK	BROWN BOVERI-KRUPP REAKTORBAU GMBH				1
BBR	BROWN BOVERI REAKTOR GMBH				1
CE	COMBUSTION ENGINEERING CO.		11		4
CEA	COMMISSARIAT A L'ENERGIE ATOMIQUE				1
CFHI	CHINA FIRST HEAVY INDUSTRIES	7	8		
CGE	CANADIAN GENERAL ELECTRIC		1		1
CIAE(Chi	CHINA INSTITUTE OF ATOMIC ENERGY	1			
CNCLNEY	CNIM-CONSTRUCTIONS NAVALES ET INDUSTRIELLES DE MEDITERRANEE CL - CREUSOT LOIRE , NEY - NEYRPIC				1
CNEA	COMISIÓN NACIONAL DE ENERGÍA ATÓMICA	1			

TABLE 25. NSSS SUPPLIERS: ABBREVIATIONS AND SUMMARY — continued

Supplier Code	Type	Under Construction	Operational	Long term shutdown	Shutdown
CNNC	CHINA NATIONAL NUCLEAR CORPORATION		9		
CZEC	CHINA ZHONGYUAN ENGINEERING CORPORATION	2			
DEC	DONGFANG ELECTRIC CORPORATION	3	11		
DHICKAEC	DOOSAN HEAVY INDUSTRIES AND CONSTRUCTION CO. LTD./KOREA ATOMIC ENERGY RESEARCH INSTITUTE/COMBUSTION ENGINEERING		2		
DHICKOPC	DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO.LTD./KOREA POWER ENGINEERING COMPANY/COMBUSTIONENGINEERING	4	12		
EE/B&W/T	THE ENGLISH ELECTRIC CO., LTD / BABCOCK & WILCOX CO. / TAYLOR WOODROW CONSTRUCTION, LTD.				6
EL/WEST	ELETTRONUCLEARE ITALIANA / WESTINGHOUSE ELECTRIC CORP.				1
FAEA	FEDERAL ATOMIC ENERGY AGENCY		1		5
FRAM	FRAMATOME		64		5
FRAMACEC	FRAMACECO (FRAMATOME-ACEC-COCKERILL)		2		
GA	GENERAL ATOMIC CORP.				2
GAAA	GROUPEMENT ATOMIQUE ALSACIENNE ATLANTIQUE				1
GE	GENERAL ELECTRIC CO.		39		19
GE,AEG	GENERAL ELECTRIC COMPANY (US), ALLGEMEINE ELEKTRICITAETS- GESELLSCHAFT				1
GE/GETSC	GENERAL ELECTRIC CO. / GENERAL ELECTRIC TECHNICAL SERVICES CO.				1
GE/T	GENERAL ELECTRIC CO. / TOSHIBA CORPORATION				2
GEC	GENERAL ELECTRIC COMPANY (UK)				3
GETSCO	GENERAL ELECTRIC TECHNICAL SERVICES CO.		1		1
GNEPRWRA	GENERAL NUCLEAR ENGINEERING & PUERTO RICO WATER RESOURCES AUTHORITY (US)				1
GTM	GRANDS TRAVAUX DE MARSEILLE				1
H/G	HITACHI GE NUCLEAR ENERGY, LTD.	1			
HITACHI	HITACHI, LTD.	1	6		5
HRB	HOCHTEMPERATUR-REAKTORBAU GMBH				1
IA	INTERATOM INTERNATIONALE ATOMREAKTORBAU GMBH				1
ICL/FE	INTERNATIONAL COMBUSTION LTD. / FAIREY ENGINEERING LTD.				1
IZ	IZHORSKIYE ZAVODY		5		

TABLE 25. NSSS SUPPLIERS: ABBREVIATIONS AND SUMMARY — continued

Supplier Code	Type	Under Construction	Operational	Long term shutdown	Shutdown
JSC ASE	JSC "ATOMSTROYEXPORT"	6	2		
KEPCO	KOREA ELECTRIC POWER CORPORATION	3	1		
KWU	KRAFTWERK UNION, AG	1	9		12
LEVIVIER	LEVIVIER				2
MAEC-KAZ	MAEC-KAZATOMPROM LIMITED LIABILITY PARTNERSHIP «MANGISTAU ATOMIC ENERGY COMPLEX-KAZATOMPROM»				1
MAEP	MINATOMENERGOPROM, MINISTRY OF NUCLEAR POWER AND INDUSTRY		2		2
MHI	MITSUBISHI HEAVY INDUSTRIES, LTD.		15		5
MSM	MINISTRY OF MEDIUM MACHINE BUILDING OF THE USSR (MINSREDMASH)				5
NGA	NATIONALE GESELLSCHAFT ZUR FÖRDERUNG DER INDUSTRIELLEN ATOMTECHNIK				1
NNC	NATIONAL NUCLEAR CORPORATION		2		
NPC	NUCLEAR POWER CO., LTD.		6		
NPCIL	NUCLEAR POWER CORPORATION OF INDIA, LTD. VIKRAM SARABHAI BHAVAN, ANUSHAKTI NAGAR, MUMBAI - 400 094.	4	16		
NPIC	NUCLEAR POWER INSTITUTE OF CHINA	1	7		
OH/AECL	ONTARIO HYDRO / ATOMIC ENERGY OF CANADA, LTD.		18		2
ORANO	ORANO	4	2		
PAA	PRODUCTION AMALGAMATION 'ATOMMASH', VOLGODONSK		4		
PAIP	PRODUCTION AMALGAMATION IZHORSKY PLANT ATOMMASH,VOLGODONSK,RUSSIA		11		
PPC	PWR POWER PROJECTS, LTD.		1		
RDM	ROTTERDAMSE DROOGDOK MAATSCHAPPIJ (RDM) IN ROTTERDAM (NL)				1
S/KWU	SIEMENS/KRAFTWERK UNION, AG.		1		
SACM	SOCIETE ALSACIENNE DE CONSTRUCTIONS MECANIQUES				2
SHE	SHANGHAI ELECTRIC		2		
SIEM,KWU	SIEMENS AG, KRAFTWERK UNION AG				2
SIEMENS	SIEMENS AG, POWER GENERATION		2		1
ŠKODA	ŠKODA CONCERN NUCLEAR POWER PLANT WORKS	2	10		1
SNERDI	SHANGHAI NUCLEAR ENGINEERING RESEARCH AND DESIGN INSTITUTE CO. LTD				

TABLE 25. NSSS SUPPLIERS: ABBREVIATIONS AND SUMMARY — continued

Supplier Code	Type	Under Construction	Operational	Long term shutdown	Shutdown
T/H/F/M	TOSHIBA / HITACHI / FUJI ELECTRIC HOLDINGS / MITSUBISHI HEAVY INDUSTRIES				1
TNPG	THE NUCLEAR POWER GROUP, LTD.		4		10
TOSHIBA	TOSHIBA CORPORATION		10		7
TSINGHUA	TSINGHUA UNIVERSITY	1			
UEC	UNITED ENGINEERS AND CONTRACTORS				1
UKAEA	UNITED KINGDOM ATOMIC ENERGY AUTHORITY				10
WH	WESTINGHOUSE ELECTRIC CORPORATION	2	67		17
WH/MHI	WESTINGHOUSE ELECTRIC CORPORATION / MITSUBISHI HEAVY INDUSTRIES, LTD.		3		
Not specified	OTHERS	1			
TOTAL		**52**	**442**		**192**

Figure 1. Number of operational reactors by type and net electrical power (as of 31 Dec. 2020)

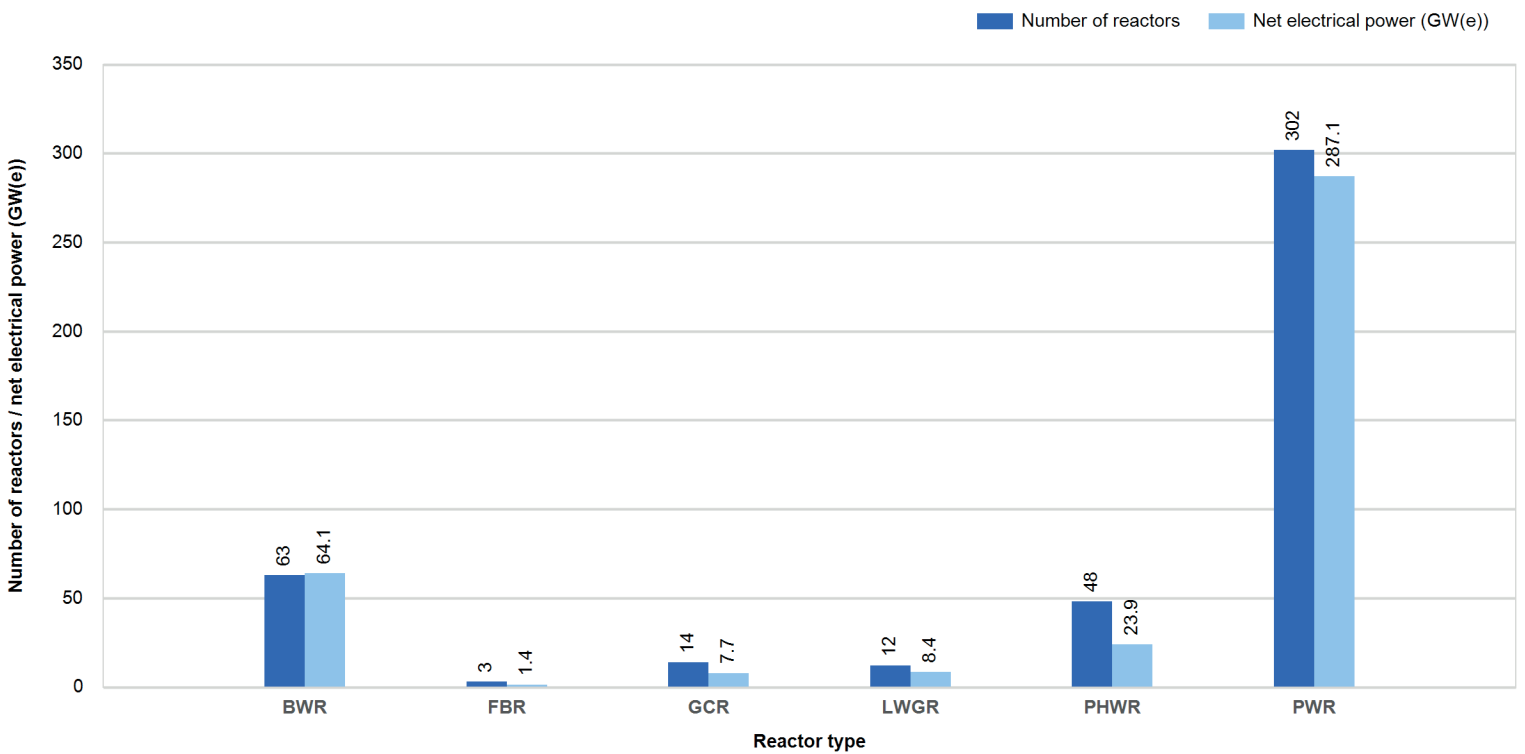


Figure 2. Reactors under construction by type and net electrical power (as of 31 Dec. 2020)

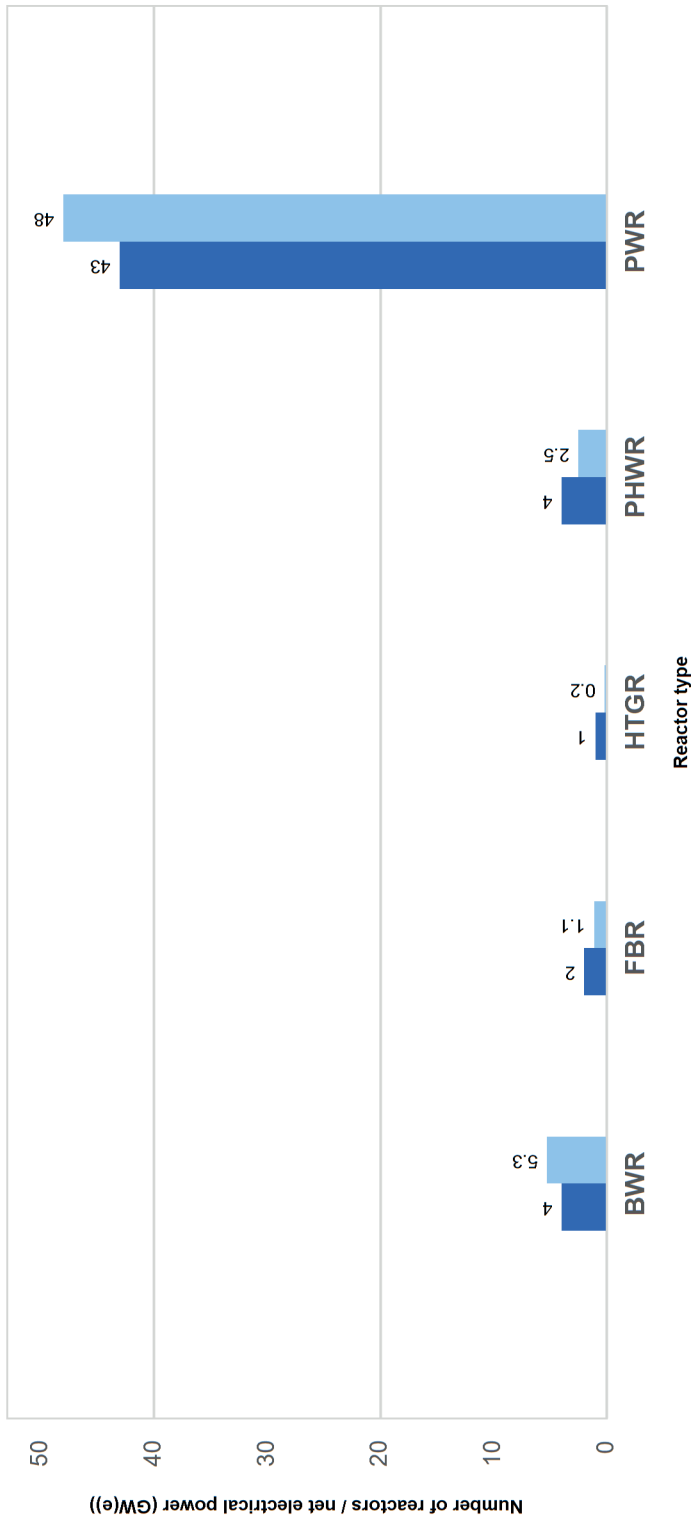
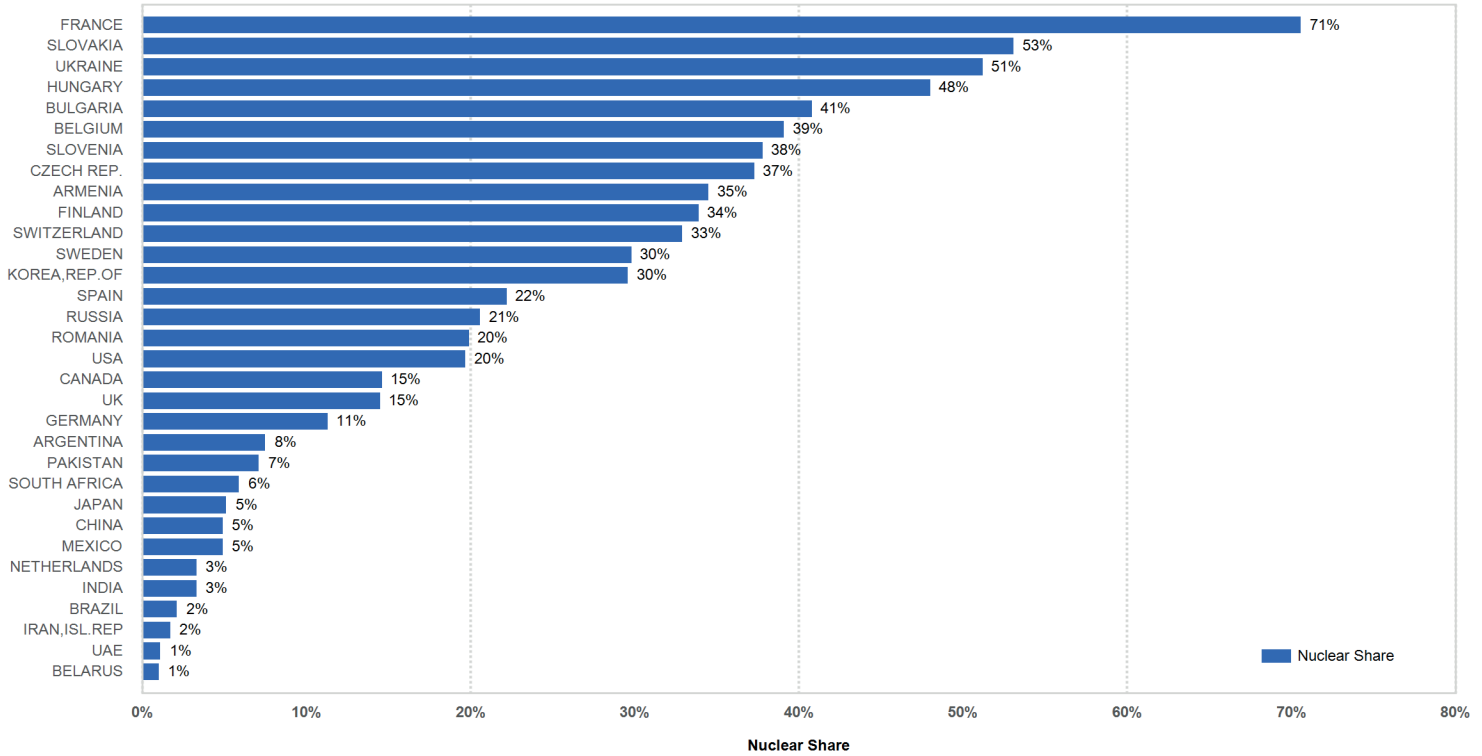


Figure 3. Nuclear share of electricity generation (as of 31 Dec. 2020)



Note: The nuclear share of electricity supplied in Taiwan, China was 12.7% of the total.

Figure 4. Worldwide median construction time in months (as of 31 Dec. 2020)

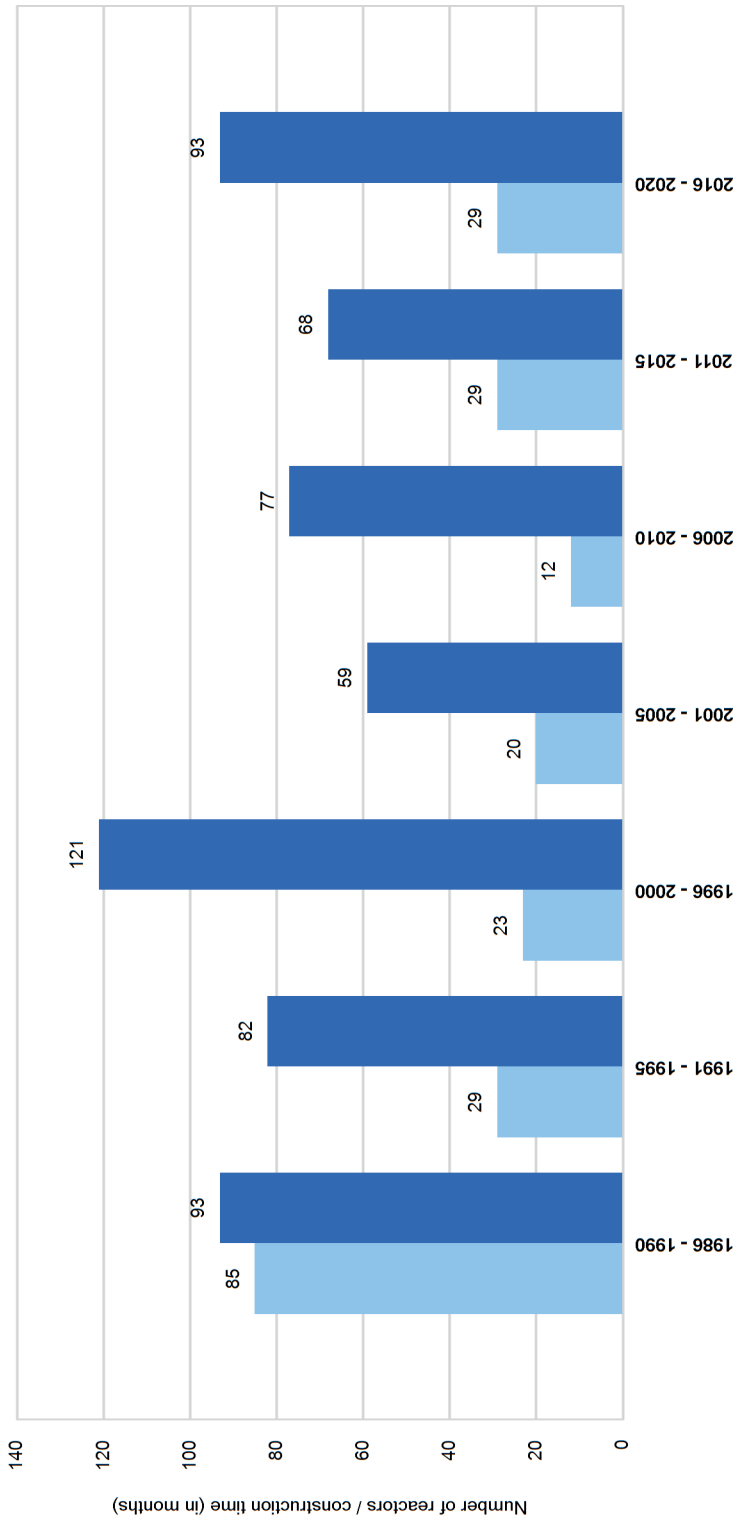
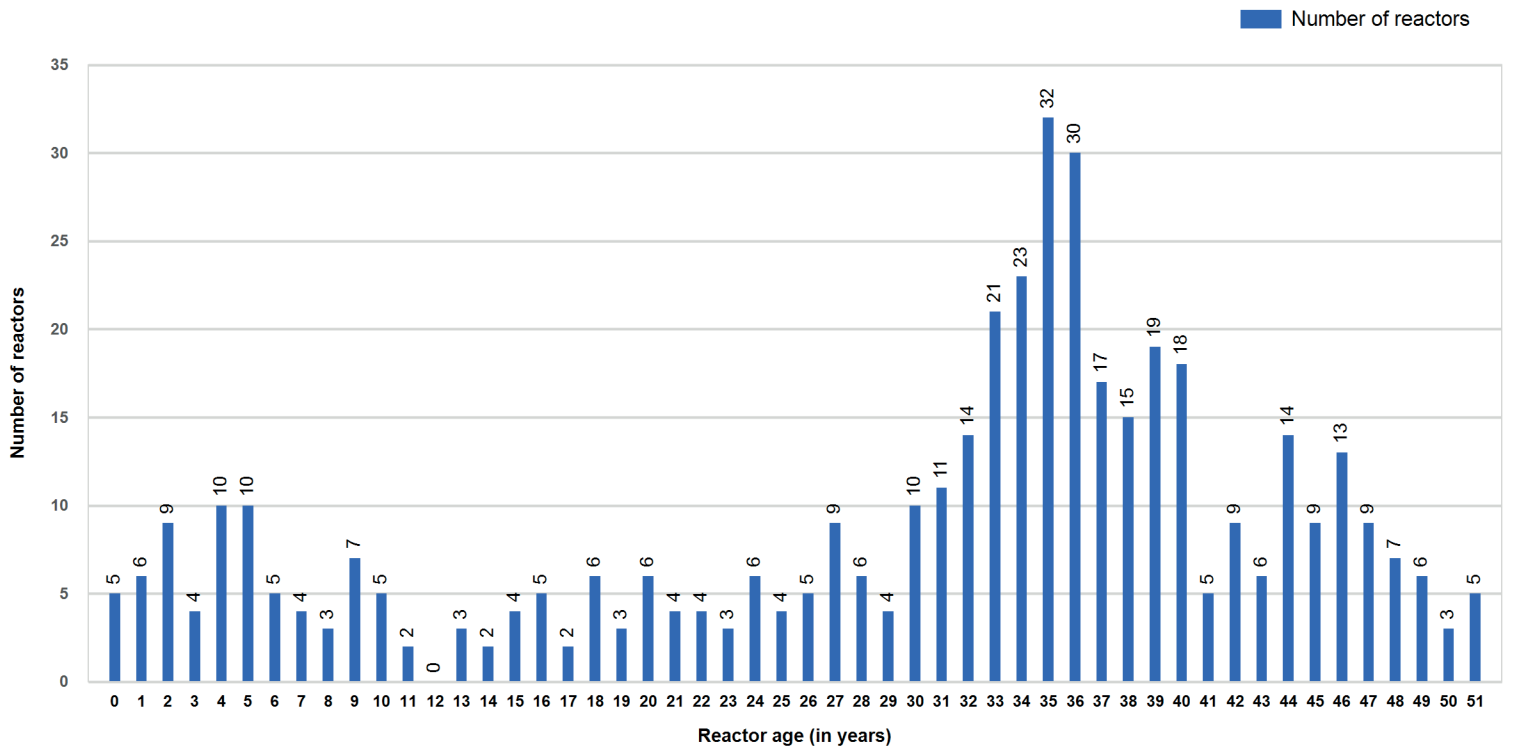


Figure 5. Number of operational reactors by age (as of 31 Dec. 2020)



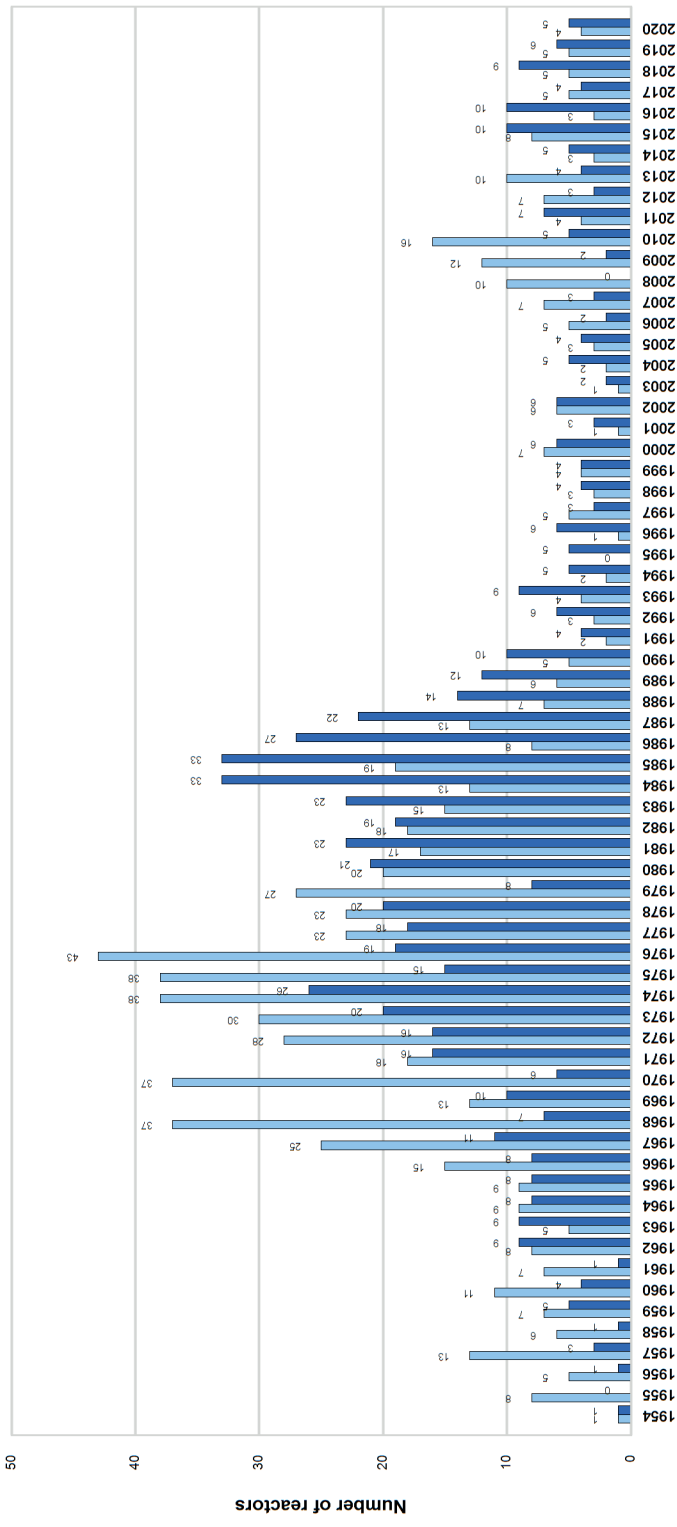


Figure 6. Annual construction starts and connections to the grid (1954–2020)

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International Atomic Energy Agency

No. 26

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