

# ANNEX 5 – NUCLEAR REACTORS IN THE WORLD “UNDER CONSTRUCTION”

Table 21 · Nuclear Reactors in the World “Under Construction” (as of 1 July 2024)

Country	Units	Capacity MW net	Model	Initial Construction Start	Expected Grid Connection	Delayed
<b>Argentina</b>	<b>1</b>	<b>25</b>				
Carem25		25	CAREM (PWR)	08/02/2014	2028 <sup>1</sup>	yes
<b>Bangladesh</b>	<b>2</b>	<b>2160</b>				
Rooppur-1		1080	VVER V-523	30/11/2017	2024 <sup>2</sup>	yes
Rooppur-2		1080	VVER V-523	14/07/2018	2025 <sup>3</sup>	yes
<b>China</b>	<b>27</b>	<b>29 101</b>				
Changjiang SMR-1 <sup>4</sup>		100	ACP100 <sup>5</sup>	13/07/2021	2026 <sup>6</sup>	
Changjiang-3		1000	HPR1000 <sup>7</sup>	31/03/2021	2026 <sup>8</sup>	
Changjiang-4		1000	HPR1000	28/12/2021	2026 <sup>9</sup>	
Haiyang-3		1161	CAP1000	07/07/2022	2027 <sup>10</sup>	
Haiyang-4		1161	CAP1000	22/04/2023	2027 <sup>11</sup>	
Lianjiang-1		1224	CAP1000	29/09/2023	2028 <sup>12</sup>	
Lianjiang-2		1224	CAP1000	26/04/2024	2028 <sup>13</sup>	
Lufeng-5		1116	HPR1000	08/09/2022	2027 <sup>14</sup>	
Lufeng-6		1116	HPR1000	26/08/2023	2028 <sup>15</sup>	
Sanaocun-1		1117	HPR1000	31/12/2020	2026 <sup>16</sup>	
Sanaocun-2		1117	HPR1000	30/12/2021	2027 <sup>17</sup>	
Sanmen-3		1163	CAP1000	28/06/2022	2027 <sup>18</sup>	
Sanmen-4		1163	CAP1000	23/03/2023	2028 <sup>19</sup>	
Shidao-Bay 2-1 <sup>20</sup>		1400	CAP1400	04/2019 <sup>21</sup>	2024 <sup>22</sup>	
Shidao-Bay 2-2		1400	CAP1400	11/2019 <sup>23</sup>	2024 <sup>24</sup>	
Taipingling-1 <sup>25</sup>		1116	HPR1000	26/12/2019	2025 <sup>26</sup>	
Taipingling-2		1116	HPR1000	15/10/2020	2026 <sup>27</sup>	
Tianwan-7		1171	VVER V-491	19/05/2021	2026 <sup>28</sup>	
Tianwan-8		1171	VVER V-491	15/02/2022	2027 <sup>29</sup>	
Xiapu-1		642	CFR-600	29/12/2017	2024 <sup>30</sup>	yes
Xiapu-2		642	CFR-600	27/12/2020	2026 <sup>31</sup>	
Xudapu-1 <sup>32</sup>		1000	CAP1000	15/11/2023	2028 <sup>33</sup>	
Xudapu-3		1200	VVER V-491	19/05/2021	2027 <sup>34</sup>	
Xudapu-4		1200	VVER V-491	19/05/2022	2028 <sup>35</sup>	
Zhangzhou-1		1126	HPR1000	16/10/2019	2024 <sup>36</sup>	
Zhangzhou-2		1126	HPR1000	04/09/2020	2025 <sup>37</sup>	
Zhangzhou-3		1129	HPR1000	22/03/2024	2028/2029 <sup>38</sup>	

Country	Units	Capacity MW net	Model	Initial Construction Start	Expected Grid Connection	Delayed
<b>Egypt</b>	<b>4</b>	<b>4 400</b>				
El Dabaa-1		1100	VVER-1200	20/07/2022	2028 <sup>39</sup>	
El Dabaa-2		1100	VVER-1200	19/11/2022	2029 <sup>40</sup>	
El Dabaa-3		1100	VVER-1200	03/05/2023	2030 <sup>41</sup>	
El Dabaa-4		1100	VVER-1200	23/02/2024	2031 <sup>42</sup>	
<b>France</b>	<b>1</b>	<b>1 630</b>				
Flamanville-3		1630	EPR	03/12/2007	2024 <sup>43</sup>	yes
<b>India</b>	<b>7</b>	<b>5 398</b>				
Kudankulam-3		917	VVER V-412	29/06/2017	2025/2026 <sup>44</sup>	yes
Kudankulam-4		917	VVER V-412	23/10/2017	2026 <sup>45</sup>	yes
Kudankulam-5		917	VVER V-412	29/06/2021	2026/2027 <sup>46</sup>	likely <sup>47</sup>
Kudankulam-6		917	VVER V-412	20/12/2021	2027 <sup>48</sup>	likely <sup>49</sup>
PFBR		470	FBR	23/10/2004	12/2024 <sup>50</sup>	yes
Rajasthan-7		630	PHWR	18/07/2011	2025/2026 <sup>51</sup>	yes
Rajasthan-8		630	PHWR	30/09/2011	2026 <sup>52</sup>	yes
<b>Iran</b>	<b>1</b>	<b>974</b>				
Bushehr-2		974	VVER V-446	02/1976 <sup>53</sup>	2028 <sup>54</sup>	yes
<b>Japan</b>	<b>1</b>	<b>1 325</b>				
Shimane-3		1325	ABWR	12/10/2007	2030 <sup>55</sup>	yes
<b>Russia</b>	<b>6</b>	<b>3 960</b>				
BREST-OD-300		300	FBR	08/06/2021	2027 <sup>56</sup>	?
Kursk 2-1		1200	VVER V-510	29/04/2018	2025 <sup>57</sup>	yes
Kursk 2-2		1200	VVER V-510	15/04/2019	2027 <sup>58</sup>	yes
Leningrad 2-3		1150	VVER V-491	14/03/2024	2030 <sup>59</sup>	
Cape Nagloynyn 1-1 <sup>60</sup>		55	RITM-200S	30/08/2022	?	
Cape Nagloynyn 1-2		55	RITM-200S	30/08/2022	?	
<b>Slovakia</b>	<b>1</b>	<b>440</b>				
Mochovce-4		440	VVER V-213	01/01/1985	2025 <sup>61</sup>	yes
<b>South Korea</b>	<b>2</b>	<b>2 680</b>				
Saeul-3 <sup>62</sup>		1340	APR-1400	03/04/2017	2024 <sup>63</sup>	yes
Saeul-4		1340	APR-1400	20/09/2018	10/2025 <sup>64</sup> (commercial operation)	yes
<b>Türkiye</b>	<b>4</b>	<b>4 456</b>				
Akkuyu-1		1114	VVER V-509	03/04/2018	2025 <sup>65</sup>	yes
Akkuyu-2		1114	VVER V-509	08/04/2020	2026 <sup>66</sup>	yes
Akkuyu-3		1114	VVER V-509	10/03/2021	2027 <sup>67</sup>	yes
Akkuyu-4		1114	VVER V-509	21/07/2022	2028 <sup>68</sup>	yes

Country	Units	Capacity MW net	Model	Initial Construction Start	Expected Grid Connection	Delayed
<b>U.K.</b>	<b>2</b>	<b>3 260</b>				
Hinkley Point C-1	1	1 630	EPR-1750	11/12/2018 <sup>69</sup>	2030? <sup>70</sup>	yes
Hinkley Point C-2	1	1 630	EPR-1750	12/12/2019 <sup>71</sup>	2031? <sup>72</sup>	yes
<b>World</b>	<b>59</b>	<b>59 809</b>		<b>1976–2024</b>	<b>2024–2031</b>	<b>23</b>

## Notes

1 - Further delayed. The construction of CAREM, was suspended in 2019 “due to breaches by contractor companies”. Concreting restarted in January 2022, with a startup expected in 2027. However, construction seems to be halted again, with expected startup pushed back to 2028.

Candelaria Grimberg and Horacio Soria, “Argentina budget cuts hitting nuclear energy ambitions, atomic body says”, *Reuters*, 2 May 2024, see <https://www.reuters.com/business/energy/argentina-budget-cuts-hitting-nuclear-energy-ambitions-atomic-body-says-2024-05-02/>, accessed 3 May 2024.

2 - Further delayed, at least by a few months. Startup at construction start was expected in 2023.

See Rosatom, “First concrete poured at the constructed Rooppur NPP site (Bangladesh)”, Press Release, 30 November 2017, see <http://www.rosatom-overseas.com/media/news/first-concrete-poured-at-the-site-constructed-npp-rooppur-bangladesh.html>, accessed 17 August 2020.

In April 2024, press reports mentioned “December 2024” as a target date for startup. “One of the two units of the Rooppur Nuclear Power Plant will be commissioned this December if transmission lines are ready although the deadline for the project’s completion has been extended to 2027.” See Ahmed Humayun Kabir Topu, “Rooppur Nuclear Power Plant: First unit to start production in December”, *The Daily Star*, 27 April 2024, see <https://www.thedailystar.net/news/bangladesh/news/rooppur-nuclear-power-plant-first-unit-start-production-december-3596116>, accessed 3 May 2024.

As already mentioned in WNISR2023, Rooppur-1 startup is more likely to take place in 2025, or beyond.

3 - First official delay. Startup at construction start was expected in 2024. See Rosatom, “Main construction of the 2nd Unit of Rooppur NPP begins with the ‘First Concrete’ ceremony”, Press Release, 14 July 2018, see <http://rosatom.ru/en/press-centre/news/main-construction-of-the-2nd-unit-of-rooppur-npp-begins-with-the-first-concrete-ceremony/>, accessed 15 July 2018.

Commercial operation is now expected in 2026. See *The Business Standard*, “PM Hasina wants Russian Rosatom to build another nuclear power plant at Rooppur”, 2 April 2024, see <https://www.tbsnews.net/bangladesh/energy/pm-hasina-wants-russian-rosatom-build-another-nuclear-power-plant-rooppur-821276>, accessed 3 May 2024.

4 - The Changjiang SMR is listed as Linglong-1 (Hainan Changjiang SMR) in IAEA-PRIS statistics.

5 - The ACP100 also goes by the name Linglong One.

6 - CNNC, “Workshop on the Application of Small Modular Reactor held in Hainan”, 8 September 2023, see [https://en.cnncc.com.cn/2023-09/08/c\\_919054.htm](https://en.cnncc.com.cn/2023-09/08/c_919054.htm), accessed 8 November 2023.

7 - The HPR1000 also goes by the name Hualong One.

8 - Construction period is expected to be 60 months.

See *NEI Magazine*, “First concrete poured for China’s Changjiang 3”, 1 April 2021, see <https://www.neimagazine.com/news/newsfirst-concrete-poured-for-chinas-changjiang-3-8644649>, accessed 2 April 2021.

9 - WNN, “Construction begins at second Changjiang Hualong One”, *World Nuclear News*, 29 December 2021, see <https://world-nuclear-news.org/Articles/Construction-begins-at-second-Changjiang-Hualong-O>, accessed 30 December 2021.

10 - No official startup date provided at construction start. WNISR used 2027, confirmed at construction start of Haiyang-4. See following note.

11 - According to Shanghai Nuclear Engineering Research and Design Institute (SNERDI), construction time of Haiyang-3 and -4 is expected to be 56 months, with both units to be in operation in 2027.

See SNERDI, “海阳核电4号机组顺利实现FCD [Haiyang Nuclear Power Unit 4 Successfully Achieves FCD]”, Press Release (in Chinese), Shanghai Nuclear Engineering Research & Design Institute Co, LTD., 22 April 2023, see <https://www.snerdi.com.cn/newsdetail?id=9277>, accessed 28 April 2023.

12 - WNN, “Construction of first unit at Lianjiang under way”, 9 October 2023, see <https://www.world-nuclear-news.org/Articles/Construction-of-first-unit-at-Lianjiang-under-way>, accessed 29 November 2023.

13 - No official startup date at construction start. Construction of Lianjiang-1 and -2 is expected to last 56 months.

See *NEI Magazine*, “Construction begins at unit 2 of China’s Lianjiang NPP”, Nuclear Engineering International, 21 April 2023, see <https://www.neimagazine.com/news/newsconstruction-begins-at-unit-2-of-chinas-lianjiang-npp-10779693>, accessed 24 April 2023.

14 - Commencement of operation of Lufeng-5 is expected in 2027.

See CGN, “Annual Report 2023: Professionalism Achieves a Bright Future”, March 2024, see <http://en.cgnp.com.cn/encgnp/c100882/2024-04/11/cb76379ce6e04b15829f4f8686032e0e/files/e0670ca0ee664b9a977afc238c6e47f4.pdf>, accessed 13 May 2024.

15 - Commencement of operation of Lufeng-6 is expected in 2028. CGN, “Annual Report 2023”, March 2024, op. cit.

16 - Commencement of operation of Sanaocun-1 (also known as San’ao or Cangnan-1) is expected in 2026.

See CGN Power, “Annual Report 2023”, March 2024, op.cit.

- 17 - Commencement of operation of Sanaocun-2 (also known as San'ao or Cangnan-2) is expected in 2027. See CGN Power, "Annual Report 2023", March 2024, op. cit.
- 18 - No official information on expected startup date at construction start. World Nuclear Association (WNA) uses 2027. See WNA, "Plans for New Nuclear Reactors Worldwide", Updated June 2024, see <https://world-nuclear.org/information-library/current-and-future-generation/plans-for-new-reactors-worldwide.aspx>, accessed 28 June 2024.
- 19 - No official information on expected startup date at construction start. World Nuclear Association (WNA) uses 2028. See WNA, "Plans for New Nuclear Reactors Worldwide", Updated June 2024, op. cit.
- 20 - Provisional names for the two CAP1400 at Rongcheng/Shidaowan. Construction of those reactors was introduced in WNISR statistics in 2020 following *Nuclear Intelligence Weekly (NIW)* articles (in particular 10 July 2019) and confirmation from sources in China. In July 2019, *NIW* classified the two units as "under construction" on the basis of the Chinese National Nuclear Safety Administration (NNSA) map as of June 2019. See *NIW*, "Chinese Power Reactor Project Wrapped in Secrecy", *Nuclear Intelligence Weekly*, 12 July 2019.
- 21 - According to sources in China, first basemat concrete for the first CAP1400 reactor was poured on 8 April 2019. See also C.F. Yu, "CGN's Taipingling Project Moves Ahead", *Nuclear Intelligence Weekly*, 20 December 2019. See previous note.
- 22 - No official startup dates at this point. According to sources in China, the expected construction duration of CAP1400 from Zheng Mingguang is about 56 months. WNISR2024 keeps 2024 as expected grid connection.
- 23 - According to sources in China, first basemat concrete for the second CAP1400 reactor was poured in November 2019. See previous notes.
- 24 - No official startup dates at this point. WNISR2024 keeps 2024 for grid connection date. See previous notes.
- 25 - Also known as Huizhou.
- 26 - CGN, "Annual Report 2023", 2024, op. cit.
- 27 - Ibidem.
- 28 - According to sources in China, the contract between China and Russia stipulated a construction duration of 65 months. Rosatom stated about the Tianwan-7 and -8 project "the units are scheduled to be commissioned in 2026-2027". See Rosatom, "Start of new unit construction at China's Tianwan and Xudapu nuclear power plants", Press Release, 19 May 2021, see <https://rosatom.ru/en/press-centre/news/start-of-new-unit-construction-at-china-s-tianwan-and-xudapu-nuclear-power-plants/>, accessed 14 June 2021.
- 29 - See Rosatom State Corporation Engineering Division, "The First Concrete has been Laid at Tianwan NPP Power Unit 8 in China", Press Release, ASE Rosatom, 28 February 2022, see <https://ase-ec.ru/en/for-journalists/news/2022/feb/the-first-concrete-has-been-laid-at-tianwan-npp-power-unit-8-in-china/>, accessed 28 February 2022.
- 30 - First delay. Commercial operation at construction start was expected in 2023. WNN, "China begins building pilot fast reactor", 29 December 2017, see <http://www.world-nuclear-news.org/NN-China-begins-building-pilot-fast-reactor-2912174.html>, accessed 30 December 2017. According to Chinese sources, reported by IPFM, as of mid-2023, the CFR-600 was running at low power but no information on electricity production or grid connection had been provided. Hui Zhang, "China started operation of its first CFR-600 breeder reactor", IPFM Blog, 15 December 2023, see [https://fissilematerials.org/blog/2023/12/china\\_started\\_operation\\_o.html](https://fissilematerials.org/blog/2023/12/china_started_operation_o.html), accessed 3 May 2024.
- 31 - No official information about expected grid connection. WNISR2024 uses 2026 (same originally expected duration as Xiapu-1).
- 32 - Also known as Xudabu or Xudabao.
- 33 - WNN, "Work on Xudabao unit 1 gets under way", 16 November 2023, see <https://www.world-nuclear-news.org/Articles/Work-on-Xudabao-unit-1-gets-under-way>, accessed 17 November 2023.
- 34 - According to sources in China, the expected construction duration of VVER-1200/V491 is 69 months. At construction start, Rosatom stated about the Xudabao Project, "the units are expected to be commissioned in 2027-2028". See Rosatom, "Start of new unit construction at China's Tianwan and Xudapu nuclear power plants", Press Release, 19 May 2021, <https://rosatom.ru/en/press-centre/news/start-of-new-unit-construction-at-china-s-tianwan-and-xudapu-nuclear-power-plants/>, accessed 14 June 2021.
- 35 - According to Rosatom at construction start of Unit 4, commissioning of Xudabu-3 and -4 is scheduled for 2027-2028. See ASE-Rosatom, "First Concrete laid at Xudapu NPP Power Unit 4 in China", Press Release, 19 May 2022, see <https://ase-ec.ru/en/for-journalists/news/2009/may/first-concrete-laid-at-xudapu-npp-power-unit-4-in-china/>, accessed 19 May 2022.
- 36 - No official startup date at construction start. See CNNC, "CNNC's Zhangzhou nuclear plant goes into construction", China National Nuclear Corporation, 23 December 2019, see [http://en.cnncc.com.cn/2019-12/23/c\\_435889.htm](http://en.cnncc.com.cn/2019-12/23/c_435889.htm), accessed 17 January 2020. Construction duration of Hualong One design is given as 60 months.
- 37 - No official startup date at construction start. See WNN, "Zhangzhou unit 2 construction starts", 4 September 2020, see <https://www.world-nuclear-news.org/Articles/Construction-starts-of-second-Zhangzhou-unit>, accessed 4 September 2020. Construction duration of Hualong One design is given as 60 months.
- 38 - No official startup date at construction start. *Xinhua*, "China begins construction on 2nd phase of Zhangzhou nuclear power project", 22 February 2024, see [http://english.scio.gov.cn/chinavoices/2024-02/23/content\\_117015492.htm](http://english.scio.gov.cn/chinavoices/2024-02/23/content_117015492.htm), accessed 24 February 2024. Construction duration of Hualong One design is given as 60 months. However, CGTN quotes 2028 for commencement of operation. See CGTN, "Construction on new unit of Zhangzhou nuclear power plant underway in Fujian", 23 February 2024, see <https://news.cgtn.com/news/2024-02-23/Construction-on-new-unit-of-Zhangzhou-nuclear-power-plant-underway-1rqt4dAP1Li/p.html>, accessed 10 May 2024.

- 39 - *Egypt Today*, “Egypt’s Nuclear Plants Authority, Rosatom committed to Dabaa plant construction schedule: Official”, 9 May 2022, see <https://www.egypttoday.com/Article/3/115597/Egypt-s-Nuclear-Plants-Authority-Rosatom-committed-to-Dabaa-plant-construction>, accessed 17 July 2022. However, officials are now expecting a “trial operation” of the reactor as soon as the second part of 2027. See *Asharq Al-Awsat*, “Egypt Reveals Start Date for Trial Operation at Dabaa Nuclear Plant”, 29 March 2024, see <https://english.aawsat.com/node/4938331>, accessed 14 August 2024.
- 40 - No official specific startup date for El Dabaa-2 as of construction date. WNISR2024 uses 2029 (WNA uses 2030 for El Dabaa 2–4).
- 41 - No official specific startup date for El Dabaa-3 as of construction date; however, according the Ministry of Electricity as of June 2023, all four units are to be completed by 2030 or 2031. “Dabaa nuclear plant project progresses according to schedule: Minister of Electricity”, *Daily News Egypt*, 14 June 2023, see <https://www.dailynewsegypt.com/2023/06/14/dabaa-nuclear-plant-project-progresses-according-to-schedule-minister-of-electricity/>, accessed 22 August 2023. WNISR2024 uses 2030 (WNA uses 2030 for El Dabaa 2–4)
- 42 - No official specific startup date for El Dabaa-4 as of construction date. As all four units are expected online by 2030 or 2031 (see previous note), WNISR2024 uses 2031 (WNA uses 2030 for El Dabaa 2–4).
- 43 - Further delayed. Delayed many times from its original planned startup date of 2012. Expected for the first quarter of 2024 in WNISR2023, fuel loading started in May 2024, with grid connection still expected during the summer of 2024. See EDF, “Update on the Flamanville EPR”, 8 May 2024, see <https://www.edf.fr/en/the-edf-group/dedicated-sections/journalists/all-press-releases/update-on-the-flamanville-epr-2> accessed 8 May 2024.
- 44 - Further delayed. Completion of Kudankulam-3 & -4 is now expected in 2026, compared to 2025 in WNISR2023. See MoSPI, “463rd Flash Report on Central Sector Projects (Rs. 150 crore and above)”, Ministry of Statistics and Programme Implementation, Government of India, May 2024, see [http://nsi.cspm.gov.in/english/fr\\_part/2024-25/May/Part-1.pdf](http://nsi.cspm.gov.in/english/fr_part/2024-25/May/Part-1.pdf), accessed 5 July 2024.
- 45 - Further delayed. Completion of Kudankulam-3 & -4 is now expected in 2026, compared to 2025 in WNISR2023. See previous note.
- 46 - Expected construction duration of Kudankulam-5 is 66 months. See Department of Atomic Energy and Lok Sabha “Unstarred Question No.2756—Kudankulam Nuclear Power Plant”, answered by Jitendra Singh, Minister of State for Personnel, Public Grievances & Pensions, Prime Minister’s Office, Government of India, 10 March 2021, see <https://dae.gov.in/writereaddata/lsusq%202756.pdf>, accessed 30 June 2021. Kudankulam-5 & -6 are still scheduled to be commissioned by 2027, see MoSPI, “463rd Flash Report on Central Sector Infrastructure Projects (Rs. 150 crore & above)—Part - II”, Ministry of Statistics and Programme Implementation, Government of India, May 2024, see [http://www.cspm.gov.in/english/fr\\_part/2024-25/May/Part-2.pdf](http://www.cspm.gov.in/english/fr_part/2024-25/May/Part-2.pdf), accessed 18 July 2024.
- 47 - In March 2022, the Indian government announced that the “project completion schedule” for the four reactors under construction at Kudankulam are “likely to be impacted” because “components and equipments to be imported from Ukraine and Russia may be delayed due to the logistical and ocean freight problems” arising from the war on Ukraine. See Department of Atomic Energy and Rajya Sabha, “Unstarred Question No. 3286—Status of Work at Kudankulam Power Plant”, answered by Jitendra Singh, Minister of State for Personnel, Public Grievances & Pensions, Prime Minister’s Office, Government of India, 31 March 2022, see <http://dae.gov.in/writereaddata/rsusq3286.pdf>, accessed 7 April 2022.
- 48 - The expected construction duration of Kudankulam-6 is 75 months. See Department of Atomic Energy, “Lok Sabha - Unstarred Question No.2756 to be answered on 10.03.2021- Kudankulam Nuclear Power Plant”, Government of India, op. cit.
- 49 - See note on Kudankulam-5.
- 50 - Delayed several times. Fuel loading started in March 2024, with grid connection expected by the end of 2024. Office of the Prime Minister of India, “PM witnesses the historic ‘Commencement of Core Loading’ at India’s first indigenous Fast Breeder Reactor (500 MWe) at Kalpakkam, Tamil Nadu”, Government of India, 4 March 2024, see [https://www.pmindia.gov.in/en/news\\_updates/pm-witnesses-the-historic-commencement-of-core-loading-at-indias-first-indigenous-fast-breeder-reactor-500-mwe-at-kalpakkam-tamil-nadu/](https://www.pmindia.gov.in/en/news_updates/pm-witnesses-the-historic-commencement-of-core-loading-at-indias-first-indigenous-fast-breeder-reactor-500-mwe-at-kalpakkam-tamil-nadu/), accessed 19 March 2024; and IPFM, “India begins loading fuel in Prototype Fast Breeder Reactor”, International Panel on Fissile Materials, 4 March 2024, see [https://fissilematerials.org/blog/2024/03/india\\_begins\\_loading\\_fuel.html](https://fissilematerials.org/blog/2024/03/india_begins_loading_fuel.html), accessed 10 May 2024.
- 51 - Delayed. Completion of Rajasthan-7 & -8 is expected in 2026. See MoSPI, “463rd Flash Report on Central Sector Projects (Rs. 150 crore and above)”, Ministry of Statistics and Programme Implementation, Government of India, May 2024, op. cit. As of July 2024, the “Expected Date of Commercial Operation” is “under review” on NPCIL’s dedicated webpage.
- 52 - Delayed. No new announcements since WNISR2023, completion of Rajasthan-7 & -8 is expected in 2026. See MoSPI, “463rd Flash Report on Central Sector Projects (Rs. 150 crore and above)”, Ministry of Statistics and Programme Implementation, Government of India, May 2024, op.cit. As of July 2024, the “Expected Date of Commercial Operation” is “under review” on NPCIL’s dedicated webpage.
- 53 - Original construction of Bushehr-2 had started in February 1976 before it was halted in 1978. The reactor remained listed as “under construction” in PRIS-IAEA, “Nuclear Power Reactors in the World”, until the 1994 edition. Currently, PRIS indicates September 2019 as construction start, when construction work resumed, and a new concrete slab was poured. See WNISR, “Iran: Construction Restart of Busheer-2”, 14 November 2019, see <https://www.worldnuclearreport.org/Iran-Construction-Restart-of-Busheer-2.html>, accessed 8 November 2023.
- 54 - Further delayed. 2024 was the date announced when construction resumed in 2019. The Head of the Atomic Energy Organization of Iran (AEOI) Mohammad Eslami was quoted as saying in October 2023, “We hope that the second unit will be completed and inaugurated in less than 5 years and the third unit 1.5 years after that”; see NEI Magazine, “Iran pours concrete for section of second Bushehr reactor”, 13 October 2023, see <https://www.neimagazine.com/news/iran-pours-concrete-for-section-of-second-bushehr-reactor-11216439/?cf-view> accessed 8 August 2024. In January 2024, WNA changed the expected grid connection year from 2024 to 2028; see WNA, “Plans for New Nuclear Reactors Worldwide”, World Nuclear Association, January 2024, see <https://world-nuclear.org/information-library/current-and-future-generation/plans-for-new-reactors-worldwide.aspx>.

55 - Construction status unclear. Expected operation further delayed. At the end of April 2024, Chugoku Power Co. announced it now plans to start Shimane-3 by FY 2030. See *The Japan Times*, “Chugoku Electric delays restart of nuclear reactor at Shimane plant”, 1 May 2024, see <https://www.japantimes.co.jp/news/2024/05/01/japan/society/restart-of-shimane-nuclear-reactor-to-be-delayed/>.

56 - Delayed? As of construction start, BREST-OD was to start operating in 2026, and shortly after, in 2027. Rosatom, “ROSATOM starts construction of unique power unit with BREST-OD-300 fast neutron reactor”, Press Release, 8 June 2021, see <https://rosatom-europe.com/press-centre/news/rosatom-starts-construction-of-unique-power-unit-with-brest-od-300-fast-neutron-reactor/>, accessed 19 August 2022, and Rosatom, “Newsletter #247—Proryv: Breaking Through”, November 2021, see <https://rosatomnewsletter.com/2021/12/01/proryv-breaking-through/>, accessed 8 August 2024

In March 2024, Rosatom Director General Alexei Likhachev stated that the launch will be in 2026, with grid connection planned for the first half of 2027. *NEI Magazine*, “Russia’s Brest-OD-300 reactor scheduled for physical launch in 2026”, 5 March 2024, see <https://www.neimagazine.com/news/russias-brest-od-300-reactor-scheduled-for-physical-launch-in-2026-11572160/>, accessed 12 July 2024.

57 - Delayed several times. Startup dates for Kursk 2-1 and 2-2 at construction start were never very explicit, with 2022 often quoted for Unit 1, while others used 2023. However, in the 2019 edition of IAEA’s “Nuclear Power Reactors in the World”, Kursk 2-1 is the only ‘Construction Start During 2018’ to have a grid connection date, set to June 2022. In the 2022 edition, Kursk 2-1 was listed in the “Scheduled connections to the grid during 2022”. The 2023- and 2024 editions use March 2025 as grid connection date.

58 - Delayed. In the 2020 edition of IAEA’s “Nuclear Power Reactors in the World”, Kursk 2-2 is the only ‘Construction Start During 2019’ to have a grid connection date, set to December 2023. The 2023 and 2024 editions of IAEA’s “Nuclear Power Reactors in the World” use March 2027 as grid connection date for Kursk 2-2.

59 - Original startup date is 2030 (Grid connection and commercial operation). PRIS-IAEA, “Reactor Basic Information - Leningrad 2-3”, PRIS Database, 5 April 2024; and WNN, “First concrete poured at Leningrad 7”, 14 March 2024, see <https://www.world-nuclear-news.org/Articles/First-concrete-poured-at-Leningrad-7>, accessed 14 March 2024.

60 - Status of the project unclear. In August 2022, Rosatom announced the keel-laying ceremony in China of the first Arctic-type Nuclear Floating Power Unit (NFPU) to be equipped with two RITM-200C reactors and to be deployed in Russia. As there is no official name yet for the reactors, those units are provisionally named Cape Nagloynyn 1-1 and 1-2 according to the overall project name Cape Nagloynyn.

See Rosatom, “Keel-laying ceremony for the first Arctic-type Floating Power Unit with RITM-200 transport reactor vessels”, Press Release, 30 August 2022, see <https://rosatom-mena.com/press-centre/news/keel-laying-ceremony-for-the-first-arctic-type-floating-power-unit-with-ritm-200-transport-reactor-v/>, accessed 5 October 2022; and WNN, “Construction starts on Russia’s next floating nuclear power plant”, 31 August 2022, see <https://www.world-nuclear-news.org/Articles/Construction-starts-on-Russia-s-next-floating-nucl>, accessed 20 September 2022.

61 - Further delayed. Fuel loading and grid connection are expected in the first quarter of 2025. TREND, “Palivo do 4. bloku Mochoviec zavezú v roku 2025”, 6 November 2023, see <https://www.trend.sk/spravny/zavezenie-paliva-stvrteho-bloku-jadrovej-elektrarne-mochovce-caka-roku-2025> accessed 5 July 2024.

62 - In late 2022, two reactors under construction, Shin-Kori Unit 3 and 4, were renamed Saeul-1 and -2. See KHNP, “Saeul NPP Renames as Saeul Units 1, 2, 3 and 4”, Press Release, Korea Hydro & Nuclear Power, 1 November 2022, see [https://cms.khnp.co.kr/eng/selectBbsNttView.do;WCN\\_KHNPHOME=30yVBQtmOX8ttEVoH9XY011xjJSy2XlO2nT0Y1Bfo061Do1j\\_Acf1-1320158464?key=565&bbsNo=84&nttNo=46397&searchCtgr=&searchCnd=all&searchKrd=&integrDeptCode=&pageIndex=1](https://cms.khnp.co.kr/eng/selectBbsNttView.do;WCN_KHNPHOME=30yVBQtmOX8ttEVoH9XY011xjJSy2XlO2nT0Y1Bfo061Do1j_Acf1-1320158464?key=565&bbsNo=84&nttNo=46397&searchCtgr=&searchCnd=all&searchKrd=&integrDeptCode=&pageIndex=1), accessed 3 November 2022.

63 - Further delayed. Construction officially started in April 2017, suspended in July to resume in October of the same year. Commercial operation at construction start was October 2021; after numerous delays, it is expected in October 2024. However, according to KHNP, fuel loading was to take place in March 2024, which did not happen. See KHNP, “Nuclear Power Construction – Saeul #3,4”, Korea Hydro & Nuclear Power, Various Dates, see <https://cms.khnp.co.kr/eng/contents.do?key=525>, last accessed July 2024.

64 - Delayed. As of July 2024, commercial operation is still announced as October 2025. See KHNP, “Nuclear Power Construction – Saeul #3,4”, Korea Hydro & Nuclear Power, Various Dates, see <https://cms.khnp.co.kr/eng/contents.do?key=525>, last accessed 6 July 2024.

65 - Further delayed. The Akkuyu reactors were officially expected to be completed one per year starting in 2023. Commissioning of Akkuyu-1 has been pushed back to 2024, and then 2025.

66 - The Akkuyu reactors were officially to be completed one per year starting in 2023. While startup of unit 1 has been pushed back to 2025, there is no specific information on the impact for the other units. WNISR keeps a one-per-year startup frequency.

67 - See previous note.

68 - See previous note.

69 - WNISR, “The Oddly Discreet Construction Start of Hinkley Point C”, 29 December 2018, see <https://www.worldnuclearreport.org/The-Oddly-Discreet-Construction-Start-of-Hinkley-Point-C.html>, accessed 24 August 2019.

70 - Further delayed. On 23 January 2024, EDF presented three scenarios for the startup of Unit 1. The first would see startup in 2029, the second in 2030 (“base case”), and the third in 2031, compared to 2027 in WNISR2023. EDF, “Hinkley Point C Update”, Press Release, 23 January 2024, see <https://www.edf.fr/en/the-edf-group/dedicated-sections/journalists/all-press-releases/hinkley-point-c-update-1>.

71 - See WNISR, “Strangely Belated Announcement of Hinkley Point C-2 Construction Start”, 18 March 2020, see <https://www.worldnuclearreport.org/Strangely-Belated-Announcement-of-Hinkley-Point-C-2-Construction-Start.html>.

72 - Further delayed. While scenarios presented by EDF in January 2024 puts grid connection of Unit 1 within the period between 2029 and 2031, no date has been indicated for Unit 2. WNISR assumes grid connection for Unit 2 will take place with the same time lag as for the construction start. EDF, “Hinkley Point C Update”, Press Release, 23 January 2024.