Czech Republic

The Czech Republic has six operating nuclear reactors and plans to build at least two additional units. Despite the cancellation of a tender for new reactors in April 2014, the Czech government has signaled its intention to continue developing its nuclear industry. Financing and recent policy uncertainty regarding energy subsidies are the main challenges to U.S. exports, along with competition for new builds from China and South Korea.

**U.S. Ambassador to Czech Republic:** Andrew H. Schapiro

The Czech Republic currently has six operating nuclear reactors, all Russian-designed. Four reactors (model: VVER-440 V-213) are located at the Dukovany plant and two (model: VVER-1000 V-320) are located at the Temelin plant. The majority state-owned Czech Energy Works (ČEZ) owns and operates both plants.

In April 2014, the Czech government decided to postpone a tender for new reactors at Temelin, citing difficulties in setting future electricity price guarantees. Toshiba-Westinghouse and a Russian consortium were the final bidders in the tender, proffering the AP1000 and MIR-1200 designs, respectively. ČEZ had originally wanted to choose a winner by November 2013, but the date was postponed due to the July 2013 resignation of the Czech prime minister and cabinet amid bribery and power abuse scandals.

Korea Electric Power Co (KEPCO) announced that it would pursue the 2015 Temelin bid, leading to a December 2015 nuclear cooperation agreement with South Korea. In June 2015, the Czech government approved a nuclear industry strategy from the Ministry of Trade and Industry, which included a plan for one new unit at Dukovany and three additional units. A feasibility study for a new reactor at Dukovany is underway, with construction estimated at 2025 at the earliest. ČEZ also maintains a 49 percent share in a joint venture project for a new reactor at Bohunice in Slovakia as part of the New Bohunice Block.

All Dukovany and Temelin units have undergone uprates in the past 10 years, and further uprates are under consideration. The lifetime of the four Dukovany units were extended by 10 years, with the first closure now due in 2025. ČEZ is reviewing plans to extend the lifetimes by an additional 20 years.

**Planned Nuclear Energy Projects**

*Owner:* Czech Energy Works  
*Reactor Type:* PWR  
*Capacity:* 1x 1200+ MWe  
*Value of Project:* N/A
**Construction Period:** 2025-2034  
**Operation (tentative):** 2035

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**Capacity:** 1x 1200+ MWe  
**Value of Project:** N/A  
**Construction Period:** 2025-2034  
**Operation (tentative):** 2035

**Dukovany Plant Extension:** A lifetime extension to 60 years is being considered for the Dukovany NPP.  
**Temelín Expansion:** A new unit at the Temelín site is planned to be put into operation around 2026 to 2028.

**Final solution of radioactive waste management:**  
Proposed construction to start 2050 and be in operation starting 2065.

**Commercial Opportunities**

**Design, Construction, and Operation:** Tender for one new reactor at Temelín has been postponed, but a new plan for reactor development will be published soon.

**Licensing Support:** The Czech licensing agency (SÚJB) may require consulting assistance during the licensing phase of the Temelín tender. Due to the delay in the tender, however, opportunities for such support may not exist until 2017.

**Fuel Management:** There is potential for a tender for enriched uranium for the first cores of the two proposed new reactor units (3 and 4) at Temelín. Due to the delay in the design and construction tender, this will be delayed as well.

**Waste Management:** ČEZ is currently in pre-tender qualification period for the design, licensing and supply of dual-purpose storage and transport metal casks and related equipment for an on-site dry storage facility for storage of used nuclear fuel.

**Challenges and Barriers to Exports**

Financial challenges and recent political instability are the main obstacles to civil nuclear exports to the Czech Republic. Westinghouse’s recent success in the Temelín tender has shown that U.S. industry can be highly competitive in this market, but the postponement may result in the Czech government giving a fresh look to other foreign bidders in the next round. Market access relating to the country’s existing fleet is limited due to the preponderance of Russian design reactors.

Government support for new nuclear power has become more questionable in the past year. The July 2013 resignation of the Prime Minister and cabinet forced the country to pull back its decision on the Temelín tender, and the April 2014 announcement to postpone and redo the tender introduces more uncertainty toward the Czech government’s commitment to expanding the Temelín plant.

Renewable energy subsidies, enacted by the former government, resulted in spikes in consumer electricity prices and have created a backlash in public opinion toward price guarantees. This experience has made the current government reluctant to engage in a similar scheme regarding new nuclear power. Public opinion toward nuclear power, however, has remained favorable in recent years.

Moreover, the government has signaled its intention to develop its nuclear industry. In January 2016, the government created a new coordinating committee for nuclear energy under the Prime Minister. The Commission for Nuclear Energy is expected to be appointed in the coming year. New construction, supply chain, waste management and nuclear-related legislation will be centered in this new committee.

Furthermore, the country’s 2015 national energy policy repeated earlier commitments for reactor construction, promising reactors at Dukovany and Temelín. A National Plan for Nuclear Energy Development is due by December 2016.

Financial challenges remain strong, as the Czech government is unwilling to provide any financing guarantee. It has reached out to foreign partners, including the United States and Russia, for assistance in financing its planned new nuclear reactors. Financing pledges will likely be an important component in future tenders.

**Nuclear Infrastructure**

**Research Reactor:** The Rez Nuclear Research Institute currently has two research reactors in operation, and the Czech Technical University in Prague operates a third research reactor.

**Fuel:** Fuel for Dukovany and Temelín are both supplied by TVEL, though Temelín was supplied by Westinghouse until 2010. The Czech Republic’s mine at Rožňá—the only operational uranium mine in Central Europe—is nearing depletion, and the government is considering...
reopening a uranium mine near Jihlava, which is estimated to have 3,000 to 4,000 tons of uranium ore.

Waste Management: Used fuel storage and management is the responsibility of ČEZ until it is handed over to the Radioactive Waste Repository Authority (RAWRA) for storage in one of three interim dry-storage facilities. RAWRA is in charge of siting and building a high-level waste repository. Construction will start after 2050 with operation beginning in 2065.

U.S. Government Collaboration

123 Agreement: The Czech Republic has a 123 Agreement with the U.S. through Euratom; it will expire April 12, 2026 with rolling five-year extensions thereafter.

Joint Declaration on Civil Nuclear Commercial Cooperation: In December 2010, the Department of Energy (DOE) and the Department of Commerce (DOC), together with the Czech Ministry of Industry and Trade (MOIT), signed a Joint Declaration Concerning Industrial and Commercial Cooperation in the Nuclear Energy Sector.

July 2011 Trade Policy Mission: In July 2011, former DOC Under Secretary Francisco Sánchez led a civil nuclear trade policy mission with 11 U.S. civil nuclear companies to the Czech Republic, Poland and Slovenia.

Civil Nuclear Cooperation Center: In April 2012, DOE signed an MOU on nuclear energy R&D cooperation, and in 2014, it helped establish a Civil Nuclear Cooperation Center in Prague. DOC also maintains an Economic and Commercial Dialogue with MOIT.

U.S.-Czech Technical Cooperation Arrangement: The NRC and the Czech Republic State Office for Nuclear Safety (SÚJB) are signatories to this arrangement, which was renewed at the 2014 International Atomic Energy Agency’s General Conference.

U.S.-Czech Implementing Agreement: The NRC and Czech Republic State Office for Nuclear Safety (SÚJB) are signatories to a 1999 Implementing Agreement Relating to Participation in the USNRC Program of Severe Accident Research.

U.S. Export-Import Bank (Ex-Im) Financing: Ex-Im is prepared to lend Czech power group CEZ around half the cost of enlarging its Temelin NPP if U.S. bidder Westinghouse wins a tender to build it.

R&D Cooperation: The United States and Czech Republic signed an agreement for a joint civil nuclear cooperation center in Prague. The United States has pledged $500,000 (£319,476) in funding via contributions to the International Atomic Energy Agency’s (IAEA) Peaceful Uses Initiative for regional activities to be performed in collaboration with the Centre, including R&D workshops, seminars, training activities and academic exchanges.

International Engagement

The four central European nations make up the Visegrad Group, also known as the V4. The June 16, 2013 Warsaw summit, which was attended by the countries’ prime ministers, commemorated the 10th anniversary of V4-Japan cooperation. In a joint statement, the parties expressed their intention to further strengthen their ties in a range of areas as well as recognize the “attractive opportunities” represented by the V4’s markets for Japanese companies. The participants formally expressed their “great interest in deepening mutual cooperation” in nuclear energy, environment, energy saving and renewable energy, and Japan reaffirmed its “duty” to contribute to worldwide nuclear safety by sharing knowledge and lessons learned from the 2011 accident at the Fukushima Daiichi nuclear power plant.
## Figure 2: Additional Agreements

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<td>Non-Proliferation Treaty</td>
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<td>IAEA Comprehensive Safeguards Agreement &amp; Additional Protocol</td>
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<td>Joint Convention on Safety of Spent Fuel Management</td>
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<td>Convention on Nuclear Safety</td>
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<td>Convention on Early Notification of a Nuclear Accident</td>
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<td>Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency</td>
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<td>Vienna Convention on Civil Liability for Nuclear Damage</td>
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<td>Convention on Supplementary Compensation for Nuclear Damage</td>
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<td>Joint Protocol Relating to the Application of the Vienna Convention and Paris Convention</td>
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## Organization Membership

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<td>IAEA</td>
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<td>Nuclear Suppliers Group</td>
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<td>OECD/NEA</td>
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<td>GenIV International Forum (GIF)</td>
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## Resources

For more information on the commercial opportunities in the Czech Republic, contact: Hana Obrusnikova (Commercial Specialist, Hana.Obrusnikova@trade.gov); Jonathan Chesebro (ITA Civil Nuclear Team, jonathan.chesebro@trade.gov).

For more information on the civil nuclear industry in the Czech Republic, contact: MOIT website (http://www.mpo.cz/); ČEZ website (www.cez.cz); SÚJB website (www.sujb.cz)

## Sources

CIA Factbook, United Nations, World Nuclear Association and our contacts at the US Embassy in Prague.