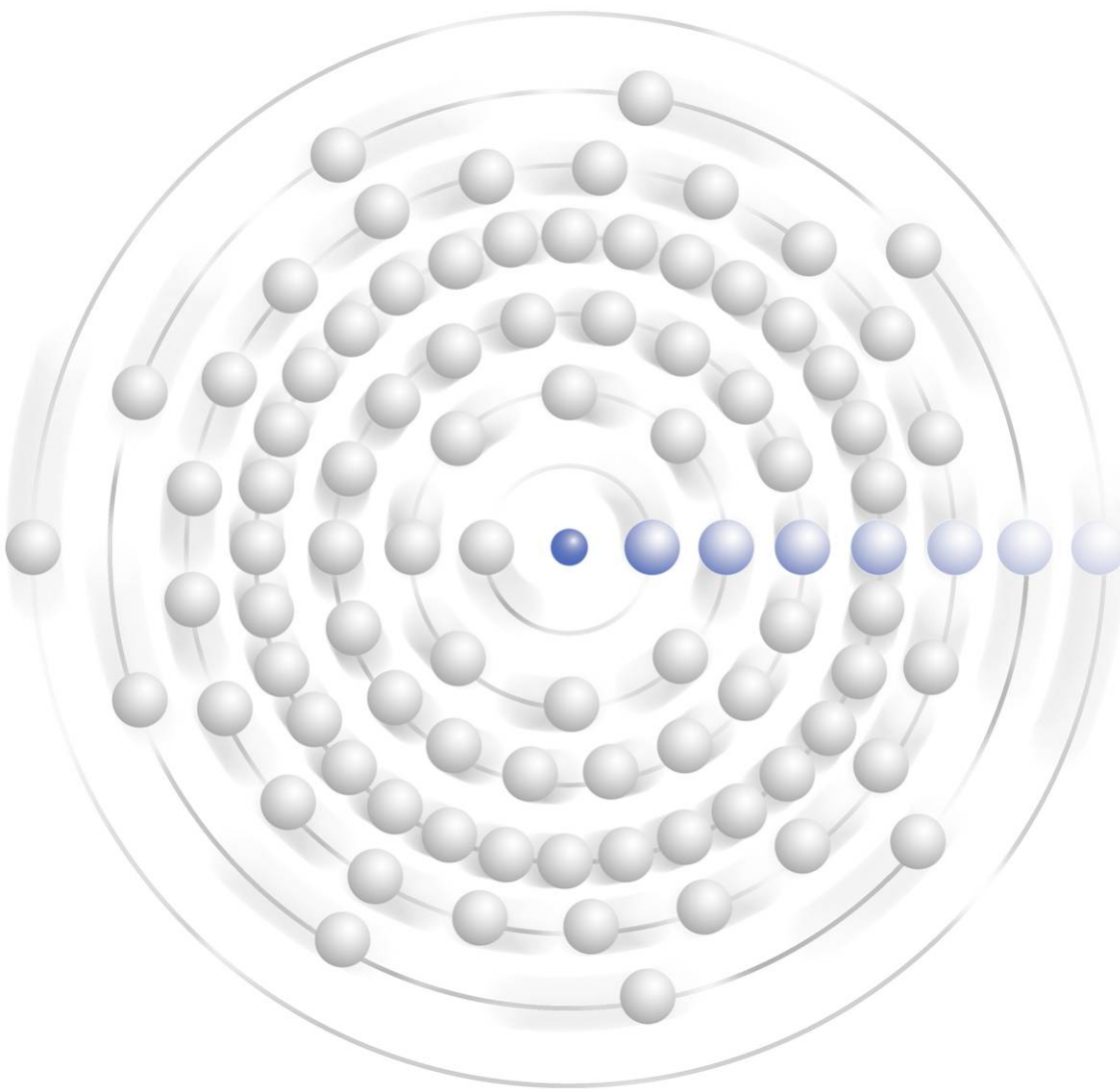




Nuclear Industry Value Chain



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1 – Introduction & Overview

The Ux Consulting Company (UxC) has prepared this special report to provide an overview of each of the market sectors within the nuclear industry value chain, including the front-end fuel markets, the overall nuclear reactor sector, as well as the back-end of the fuel cycle.

The nuclear industry has come out of an era of slow decline and is seeing a rebirth in many parts of the world. There are numerous reasons for the growth of nuclear power, including a world hungry for all forms of energy, increased concerns over the greenhouse gas emissions from fossil fuels, as well as a desire by countries to diversify their energy portfolios in the name of “energy security.” Now is the time to assess the prospects and future course of each of the sectors in this growing industry.

Purpose of Report

This report’s primary objective is to provide comprehensive analyses of each of the sectors that make up the global nuclear industry. As the title makes clear, the point here is to understand the current status and future prospects (through 2030) within this “nuclear industry value chain,” so as to support future decisions by investors, potential new entrants, and current participants in the global nuclear marketplace.

While we have attempted to follow a relatively standard format in describing each market sector, it is important to understand that each market is quite unique and requires special attention to the characteristics that define it. As this is truly only an overview report, it can obviously not do every market sector justice in describing all the defining characteristics. However, our aim in this report is to provide a relatively deep analysis and context to allow for a thorough understanding of the current and future prospects of each market sector.

Although this report is intended as an introduction to the global nuclear marketplace, it assumes a reasonable level of knowledge of nuclear-related technologies as well as familiarity with the history of the nuclear industry and developments in the nuclear fuel cycle since the inception of the peaceful use of the atom in the 1950s. If further explanation of anything in this report or related topics is required, UxC’s team of experts is available for specialized consultations. In addition, UxC publishes many detailed reports on the various nuclear market sectors, which are available for purchase.

Structure of Report

This report includes separate chapters for the different market sectors in the nuclear industry. The report proceeds along the following basic format:

Chapter 2 – Front-End Market Overview provides a broad overview of the nuclear fuel cycle front-end markets with some initial market size forecasts for the entire front-end of the fuel cycle (i.e. uranium mining through fuel fabrication).

Chapter 3 – Uranium Mining & Milling offers a detailed review of the uranium mining and milling market as it relates to the supply of uranium ore concentrate (U_3O_8 or “yellowcake”).

Chapter 4 – Uranium Conversion covers the uranium conversion market (the chemical process of converting U_3O_8 to uranium hexafluoride or UF_6).

Chapter 5 – Uranium Enrichment reviews and analyzes the current and future prospects of the uranium enrichment market (the service of separative work units or SWU for enriching natural uranium to low enriched levels necessary for light water reactor fuel).

In **Chapter 6 – Nuclear Fuel Fabrication**, we provide a discussion of the fuel fabrication market (the manufacture of completed nuclear fuel assemblies), including both fresh uranium fuel as well as mixed oxide (MOX) fuel from reprocessed plutonium.

As an overview of the nuclear reactor markets, we introduce this sector by first providing our latest UxC proprietary nuclear power forecasts and related general topics in **Chapter 7 – Nuclear Reactor Market Overview**.

Chapter 8 – Nuclear Reactor Construction covers the current and expected future status of the nuclear construction market with a focus on reactor vendors and the global supply chain.

In **Chapter 9 – Nuclear Reactor Operations and Services**, we discuss the market for services and maintenance supplies to the current and expected future operating nuclear reactor fleet around the world.

Chapter 10 – Back-End Market Overview provides an overview of the various nuclear fuel cycle back-end or waste markets.

Chapter 11 – Used Fuel Treatment, Storage & Disposal reviews and analyzes the market for used or “spent” fuel reprocessing, storage, and disposal. This chapter has separate sections focused on each of these three used fuel areas: treatment/reprocessing, storage, and disposal.

Chapter 12 – Radioactive Waste Management & Disposal offers our perspectives on the radioactive waste markets as focused on low-level and intermediate-level radioactive wastes (LLW and ILW).

Chapter 13 – Decommissioning & Decontamination covers the various aspects of the market for decommissioning and decontamination (D&D) of commercial/civilian nuclear facilities, which is often considered the final step in the nuclear value chain.

Ultimately, in **Chapter 14 – Summary & Conclusions** we provide a few concluding thoughts on the overall nuclear industry value chain and future market prospects.

A number of additional useful items related to the various sectors and broader nuclear industry are found in the attached **Glossary** and **Appendices** at the end of the report.