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Update

December 2020

A periodic newsletter to keep our clients up-to-date on developments within our company

As we enter the holiday season, all of us at UxC hope that our friends and clients throughout the world are staying safe and healthy. 2020 has been filled with many new difficulties that were unimaginable at this time just last year, but we are also comforted to know that the global nuclear industry has remained strong and steadfast throughout these trying times. At UxC, we have also had to make various adjustments, but we are confident that we will continue to weather the storm.

The following update presents company accomplishments over the past year and our plans for 2021.

Ongoing Response to COVID-19 Pandemic

Since March, UxC has operated on a fully remote basis, and we intend to maintain this status for well into the new year. However, as subscribers to all UxC products and services have witnessed, there has been no interruption to our ability to publish all our newsletters and reports while still providing the same high level of individualized support that our clients are accustomed to. Communication channels with our various nuclear market experts remain open, and we welcome our clients to contact us with any questions or concerns.

Speeches, Articles, and Achievements by UxC Personnel



UxC experts have again been staying busy by contributing to several international industry publications and events.

Carlyn Greene, Senior Vice President, Spent Fuel, presented on the topic of "Global Spent Fuel Overview" during the 35th Spent Fuel Management Seminar sponsored by the Institute of Nuclear Materials Management's (INMM) in cooperation with the U.S. Nuclear Industry Council (USNIC) and held on January 28-30, 2020, in Alexandria, VA.

Nick Carter, Executive Vice President, Uranium, provided a presentation on "Uranium Market Fundamentals" at PDAC 2020 on March 1, 2020 in Toronto, Canada. Nick is also tentatively scheduled to give a similar presentation to a virtual version of PDAC in March 2021.

Philip Johnson, Vice President, Fuel Cycle, participated as a panelist for a webinar entitled "Digging Deeper into Uranium" hosted by Red Cloud Financial Services on April 23, 2020.

Jeff Combs, Chairman and Owner, authored an article on the topic of "COVID-19 and Nuclear Energy" as part of a COVID-19 Special Issue published by the International Association for Energy Economics (IAEE) in May 2020.

Nick Carter presented on the topic of "Impact of COVID-19 on Global Uranium Production" during the Nuclear Energy Institute's (NEI) Nuclear Fuel Supply Forum virtual event on July 21, 2020.

Jonathan Hinze, President, participated as a panelist for the World Nuclear Association's (WNA) launch event for its "World Nuclear Supply Chain: Outlook 2040" report on September 23, 2020.

Anna Bryndza, Senior Vice President, Policy, who is currently serving a two-year term as Chairperson of the WNA's Fuel Cycle Members Forum (FCMF), chaired an online version of the FCMF on September 25, 2020. The next FCMF will again be held virtually on January 28, 2021.

Jonathan Hinze presented a paper on the topic of "Evaluating Global Nuclear Fuel Inventories" during NEI's International Uranium Fuel Seminar (IUFS) virtual event on October 20, 2020.

UxC Client Webinars

Subscribers to our *Nuclear Power Outlook* and *Uranium, Conversion, and Enrichment Market Outlook* reports were given the opportunity over the course of four weeks in late September through mid-October to hear from UxC experts through a series of online webinars. Each webinar included in-depth presentations as well as a Q&A session to respond to subscriber questions.



These webinars were held free for all active subscribers to the respective reports. Subscribers can [click here](#) to access past webinars, and non-subscribers can [click here](#) to learn more about UxC's webinars.

Nuclear Fuel Training Seminar in Vienna (October 10-13, 2021)

UxC is pleased to announce that it will be holding its next Nuclear Fuel Training Seminar in Vienna, Austria on October 10-13, 2021. The seminar will be held at the Hilton Vienna Plaza Hotel. The Vienna seminar will provide the same industry-leading content and market insights as our past Atlanta seminars, but will be held in central Europe for easier access for many of our international clients. Registration will begin in early 2021, so please save the date!



For additional information regarding the October 2021 seminar in Vienna, please contact Eric Webb, Executive Vice President, at eric.webb@uxc.com.

Latest Nuclear Market Outlooks

As the year comes to a close, UxC has been working to complete updated issues of all its standard *Market Outlook* reports covering the various aspects of the nuclear fuel cycle.



In addition to presenting our latest nuclear power forecast scenarios through 2040 and other detailed reactor market data and country updates, our Q4 2020 *Nuclear Power Outlook* (NPO) includes an in-depth discussion of the major trends in nuclear power by country and region over the past year, especially in light of the COVID-19 impacts on nuclear power. The latest NPO also provides insights into what to expect from the global nuclear power fleet in the coming year as well as

comparative reviews of recent major energy forecasts published by the IEA, IAEA, and BP. The accompanying *UxC Requirements Model* (URM) presents the output of our latest Q4 modeling for future nuclear fuel component requirements through 2040.



UxC's *Uranium Market Outlook* (UMO) Q3 2020 report included an essay titled "Is Past Prelude? Contrasting Today's Market with 2006," which examined market fundamentals that shaped the price run-up of 2006 versus current conditions to provide a broader understanding of how a future bull run could evolve, as well as potential price resistance going forward. The most recent Q4 2020 UMO includes an essay that analyzes assumptions of future operations for existing mine projects and how these could potentially shift depending on various factors related to each project. All our UMO reports present updated uranium supply and demand forecasts, contracting trends, market trends, and spot and long-term price forecasts to 2035.



The *Conversion Market Outlook* (CMO) report, to be issued in December 2020, will include an in-depth essay on the topic of the outlook for utility procurement and long-term contracting for conversion services. The CMO report also analyzes all aspects of the unique and constantly changing UF_6 market, including supply and demand fundamentals, contracting activity, market trends, as well as spot and long-term price forecasts to 2035.



The *Enrichment Market Outlook* (EMO) Q4 report, also to be issued in December 2020, will include an essay focusing on the major trends likely to shape the SWU market over the coming decade. The EMO also presents updates on the latest SWU market developments, including supply and demand forecasts, contracting trends, and long-term price forecasts to 2035.



UxC's *Policy Watch* reporting service over the past year has been packed with new research and analysis on all the latest policy developments affecting the nuclear markets. Front and center among key policy issues covered in *Policy Watch* in 2020 were the Trump Administration's Nuclear Fuel Working Group, the U.S. Department of Commerce's negotiations with Rosatom regarding an extension of the Russian Suspension Agreement, U.S. waivers on Iran-related sanctions, U.S. state and federal policies to support the domestic nuclear industry, Japan's policies on nuclear power and reactor restarts, and nuclear power policies in China, India, France, South Korea, Spain, Belgium, UK, and Taiwan, among many other topics.



In August 2020, UxC issued its annual *Fabrication Market Outlook* (FMO), which presents detailed information and analysis on the global fabrication markets, including the latest contracting activity, market trends, supplier profiles, supply and demand as well as LWR fuel price forecasts to 2035. This year's essay, titled "HALEU Implications for the Fabrication Industry" delves into the rapidly evolving situation regarding advances in high assay low enriched uranium (HALEU) fuel development and how this is likely to affect the nuclear fuel fabrication industry in the coming years.

As always, all UxC *Market Outlook* reports are available as part of our subscription packages.

Recent and Upcoming Special Reports

In addition to our standard reports, UxC's special reports are designed to complement our existing *Market Outlook* reports by examining key topics in greater depth. The following are some of our most recent and upcoming special reports.

New special reports in 2020:



Global Nuclear Fuel Inventories (GNFI)—In June 2020, UxC published the third edition of a special report on *Global Nuclear Fuel Inventories*. The 2020 GNFI provides the latest information and insights related to nuclear fuel inventories

around the world, including updated data and analysis of all utility, supplier, trader/financial, and government inventory levels, plus new insights into the level of utility forward coverage rates and their evolution in the coming years. The GNFI also contains forecasts for future inventory buying and disposition plus a look at inventory policy impacts on the uranium, conversion, and enrichment sectors. Plus, the GNFI includes new analysis of the market impacts of inventories and key considerations for all market entities.



Conversion & Enrichment Supplier Assessments (CESA)—In

December 2020, UxC is issuing a brand new report that provides profiles of each supplier in the conversion and enrichment markets as well as unbiased, quantitative evaluations of the major conversion and enrichment suppliers through a detailed risk matrix approach. CESA allows utilities to compare each of their suppliers and gauge the relevant risks within their current and potential future supply portfolios. For suppliers, investors, and others active or interested in following conversion and/or enrichment supply, CESA provides an independent and unique evaluation methodology to identify how each supplier ranks within the current fuel cycle market.



Uranium Suppliers Annual (USA)—In December 2020, UxC will be releasing its latest *Uranium Suppliers Annual*. Sometimes referred to as "The Uranium Bible," the USA contains comprehensive data and information on all the world's uranium suppliers, including detailed sections on planned producers, junior/exploration companies, and intermediaries. Included in the USA are future production forecasts, operational considerations, supplier/project risk analyses, production cost estimates, mill capacities, project reserves, and supplier/facility summaries. The USA also examines supplier marketing strategies, allowing buyers to understand the capabilities and motivations of suppliers, as well as the political, social, and economic environments in which they operate.

Upcoming special reports in 2021:



Nuclear Zirconium Alloy Market—Nuclear-grade zirconium alloys and products are used in the fabrication of nuclear fuel assemblies for the vast majority of current and future reactor designs. In the first half of 2021, UxC intends to publish its eighth edition of this special report, which provides updated analysis of the various sectors that make up the nuclear-grade zirconium sponge, alloy, component, and tubing markets. Using proprietary demand modeling and other unique research results, we identify the latest major trends in this industry by analyzing the global and regional supply and demand balances for nuclear-grade zirconium sponge, alloy, and tubing as well as the supply and demand situation based on reactor fuel types.



Uranium Production Cost Study (UPCS)—UxC is preparing to issue the sixth edition of this biennial report on uranium production costs in mid-2021. The UPCS complements the *Uranium Suppliers Annual* and provides production cost curves for operational, planned, and potential uranium projects to identify where expanded and new uranium supply will come from among over 100 worldwide projects to meet future nuclear fuel demand through 2035. Production cost curves for individual projects are presented by geographic region and mining method. An extensive review of various factors impacting production costs will be detailed in the new 2021 UPCS.

Virtual Atomic Runners

As all major nuclear conferences were canceled this year due to the ongoing pandemic, UxC endeavored to help connect the industry across the borders and continents, capturing the sense of camaraderie that has always characterized this industry. Thus, we organized a Virtual 5K run with our industry friends in the Atomic Runners group in July. Together, participants covered 110 km across eight countries,

sending pictures and comments to UxC, which we published in the July 27th edition of our *Ux Weekly* newsletter. Some participants also proudly wore their custom-made UxC-sponsored t-shirts for the runs. Photos submitted by all our Virtual 5K participants can be found here:
<https://www.uxc.com/p/fun/UxCPictures.aspx?gallery=Atomic%20Runners%202020>



Once in-person industry conferences are again possible, we look forward to joining all our Atomic Runners friends for live group runs! The annual UxC 5K run, however, is here to stay, and we look forward to seeing more participants next year wearing Atomic Runners t-shirts. Please contact Anna Bryndza at anna.bryndza@uxc.com if you want more information on the Atomic Runners running group.

For more information on UxC activities and reports, please visit our website at www.uxc.com.