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UxC Update

January 2019

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

As we begin 2019, UxC would like to wish all our clients a Happy New Year! It is our sincere hope that the coming year will bring good fortune to all and continued improving trends for the global nuclear industry. The following update is both a recap of UxC's action-packed 2018 and our plans for the coming year.

UxC Company Name Change

Effective November 14, 2018, we have officially changed our company name from "The Ux Consulting Company, LLC." to "**UxC, LLC.**" All other elements of the company remain the same, including ownership, address, and Federal ID number. For any references to our company going forward, we kindly request that you refer to us as either "UxC, LLC" or simply "UxC." For anyone requiring written legal notification of our company name change, please contact Shirley Rodrigues, Senior Vice President, Finance, at shirley.rodrigues@uxc.com.

UxC's 25th Anniversary

On March 1, 2019, UxC will celebrate its 25th year serving the global nuclear fuel and power industry. This would have been impossible without the industry's support, and we are grateful for your partnership over the last two and a half decades. We plan to hold several events throughout the year commemorating our company's important milestone.



Speeches, Articles, and Achievements by UxC Personnel



UxC experts are also staying busy by contributing to several international industry conferences and events.

Jonathan Hinze, President, presented at the Nuclear Energy Institute's (NEI) International Uranium Fuel Seminar (IUFS) held October 28-31, 2018 in Boston, Massachusetts. His speech "Market on the Mend" delved into the recent upward trends in the nuclear power and fuel markets and prospects for the future.



Jonathan was also the luncheon keynote speaker presenting on "Electric Power Outlook and Market Implications" at VIII Capital's Power Up 3.0 Conference held on November 12, 2018 in Toronto, Canada.

On December 11-12, 2018, **Jonathan** was invited by the U.S. Energy Information Administration (EIA) to participate as an expert in its International Nuclear Projections Workshop, which was held in Washington, DC, to help inform the EIA's upcoming 2019 International Energy Outlook (IEO). On December 13, Jonathan also presented on the topic of "Political Economies of Asian Reactor Vendors" at a workshop on the



Global Nuclear Energy Outlook organized by the Center for Strategic and International Studies (CSIS) in Washington.

Anna Bryndza, Senior Vice President, Policy, is presenting on "International Trade Issues" at the

World Nuclear Association (WNA) working groups' Fuel Cycle Members Forum being held on January 8-9, 2019 in London, UK.

Carlyn Greene, Senior Vice President, Spent Fuel, will be presenting a paper on "Spent Fuel Storage Overview" at the 34th INMM Spent Fuel Management Seminar to be held on January 22-24, 2019 in Alexandria, Virginia.

Carlyn will also be organizing a vendor booth at the International High-Level Radioactive Waste Management 2019 (IHLRWM 2019) to be held April 14-18, 2019 in Knoxville, Tennessee.

Nick Carter, Executive Vice President, Uranium, will be presenting "Rebalancing Uranium Supply with Demand" in the session on Commodities: Metals and Industry Outlook at PDAC 2019 on March 3, 2019 in Toronto, Canada.

UxC Sponsors Atomic Runners and Drinks Party in Boston

During the NEI IUFS held in October in Boston, UxC organized two separate recreational events. The first was a 3-mile run through the city with the Atomic Runners group. As a reward, UxC provided custom-made t-shirts for all the fervent runners that woke up early to brave the chilly Boston autumn temperatures to get a good workout. Later in the same evening, UxC held an after-dinner drinks party at the Cask 'n Flagon bar next to the World Series Champion Boston Red Sox's Fenway Park with over 100 fun-loving industry folks in attendance. We are thankful for all those who attended both events, and we are happy to be able to give back to all those in the industry that have supported us over these many years.



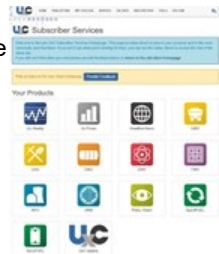
Note that the next Atomic Runners event will be at the WNFC in Miami this coming April!

UxC in the Media

Given the many interesting developments in the nuclear markets over the past half year, UxC has fielded interviews and data requests from numerous global news outlets. Specifically, Jonathan Hinze, was recently interviewed by *The Economist*, *The Wall Street Journal*, *MarketWatch/Barron's*, *MIT Technology Review*, *Bloomberg*, *Reuters*, *Joongang Ilbo*, and the *Los Angeles Business Journal*. Topics for his interviews included the latest trends in the uranium market, the outlook for China's nuclear reactor program, and Japan's nuclear fuel inventories, among other stories. Nick Carter was interviewed by *CBC Radio* in Saskatoon in late July regarding the Cameco McArthur River shutdown extension. Anya Bryndza was interviewed in July by *abctv.kz* regarding the impact of the new Yellow Cake plc fund on Kazatomprom and the uranium market and later in December by Russia's *Interfax* regarding the outlook for the uranium market in 2019.

New Client Website Dashboard

UxC Systems Administrator, Richard Dillard, has been hard at work creating a new user-friendly Dashboard for our client website (www.uxc.com/c). For those customers that have active UxC subscriptions, you can now use this new dashboard to access all of your products and services. The aim of this new dashboard is to improve our subscribers' user experience on the client site, so please check it out and make sure to respond on our feedback form as well!



UxC Nuclear Fuel Training Seminar

UxC will again be holding its annual Nuclear Fuel Training Seminar in Atlanta, Georgia, on June 25-27, 2019. In keeping with our inclusive format adopted several years ago, UxC's Seminar remains open to the



entire nuclear industry. Our 2018 seminar was our biggest yet with 44 participants from twelve different countries. Participants received in-depth training on the state of the global nuclear fuel markets, key trends and factors affecting the future of the industry, as well as specific focus on creating effective strategies either for nuclear fuel procurement, sales efforts, investment activities, or other related objectives. We will soon begin accepting registrations for the 2019 seminar through our website at: https://www.uxc.com/p/products/uxc_seminar.aspx

For additional information regarding this year's seminar or to obtain an invitation letter for a U.S. travel visa, please contact Eric Webb, Executive Vice President, at eric.webb@uxc.com.

Latest Nuclear Market Outlooks

Through the end of 2018, UxC issued several major *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, the Q4 *Nuclear Power Outlook* (NPO) report includes our annual "Year in Review" that focuses on the key developments and nuclear market trends that shaped 2018. Additionally, we examine possible future developments and expectations for the nuclear markets in the coming year.



Our Q4 *Uranium Market Outlook* (UMO) report presents our latest uranium supply and demand forecasts, contracting trends, market trends, and price forecast to 2035, as well as an in-depth essay on the topic of "U.S. Production Capability Amid Section 232," which examines the ability of future U.S. production to meet different potential quota scenarios that could arise from a remedy in the ongoing Section 232 investigation by the U.S. Department of Commerce. Detailed analysis of each U.S. producer and mine project is included along with production costs and time to market estimations.



The December 2018 *Conversion Market Outlook* (CMO) provides in-depth analysis of the unique UF₆ market, including supply and demand fundamentals, contracting activity, as well as price forecasts to 2035. The latest CMO

also includes a new essay on the important topic of "The Role of Secondary Supplies in Conversion," which analyzes the nature of non-produced supplies of conversion, their historical role in the market, and the outlook for secondary supplies in supplementing primary production of UF₆. Additional discussion is also provided on the critical interplay of transactional versus operating tails at enrichment plants and the depth of conversion inventories within the commercial marketplace.



The Q4 *Enrichment Market Outlook* (EMO) provides our most recent updates on SWU market developments, including supply and demand forecasts, contracting trends, and price forecasts to 2035. The EMO includes our latest essay on "Analyzing Centrifuge Lifetimes and Future Replacements," which takes a closer look at all the centrifuge-based enrichment plants around the world and examines when each facility may begin to see a decline in output if no new centrifuge machines are installed. This analysis determines a potential timetable for when the current fleet of centrifuges becomes obsolescent and how much new capacity may be needed to replace them to ensure that future demand for SWU is sufficiently met.



UxC's Q4 Policy Watch report was also issued in December and included in-depth coverage and analysis of all of the latest government policy issues affecting the global nuclear power and fuel cycle markets. Among the numerous policy topics covered were the French government's new long-term energy strategy, debate over fuel cycle facilities in Germany, an update on the U.S. Department of Energy's (DOE) uranium inventory disposition plan, an analysis of the U.S. Department of Commerce's (DOC) preliminary findings in its administrative review of the Russian Suspension Agreement, a review of comments to the U.S. DOC's Section 232 investigation, analysis of the U.S. DOC's end to the French LEU antidumping duties, and a look at the latest U.S. DOE nuclear technology trade restrictions with China.



Moreover, in August 2018, 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 "Realignments in the Global Fabrication Industry," reviews the major changes affecting the various vendors and how these are likely to shape the future of the industry in this post-Fukushima reduced demand environment. This timely essay considers the corporate restructurings, consolidations, and reorganizations that are occurring in the fabrication sector with significant implications for suppliers and buyers alike.

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, the following are some of our most recent and upcoming special reports.

New reports just issued:



Nuclear Industry Value Chain (NIVC) - In early December, UxC issued the seventh edition of this holistic nuclear market analysis report, the Nuclear Industry Value Chain (NIVC). At roughly 500 pages, the 2018 NIVC provides detailed information and analysis of all sectors in the nuclear industry, including the front-end fuel markets, the broader reactor sector, as well as the back-end of the fuel cycle and decommissioning. Each sector is analyzed individually based on market overview, latest developments, key players, market shares, supply and demand, pricing and profit margins, total market size, future market trends, and long-term forecasts. Multiple improvements were made to this latest NIVC report, including extending all

our forecasts to 2035, adding a whole new chapter on the advanced and small modular reactor (SMR) market, and improved modeling of the expanding international nuclear D&D market.



Uranium Suppliers Annual (USA) - In late December, we released the 2018 *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 analysis, 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 reports:



Nuclear Zirconium Alloy Market - Nuclear-grade zirconium alloys and products are used in the fabrication of fuel assemblies for the vast majority of current and future nuclear reactor designs around the world. In 2019, UxC will be publishing its seventh edition of this special report, which will provide 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) - In 2019, UxC will be issuing its fifth edition of this biennial report, which 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 also be detailed in the new 2019 UPCS.

These special reports are designed to complement our existing *Market Outlook* reports by examining key topics in greater depth as well as other subjects that are not covered in our standard reports.

UxC Continues Sponsorship of Tellus Museum

This year, UxC is also continuing its corporate sponsorship of the Tellus Science Museum in Cartersville, Georgia. Tellus is a world-class science museum affiliated with the Smithsonian Institution with 120,000 square feet of exhibit space.



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