



Essays from UxC's *Uranium Market Outlook*

Toggle Descriptions

Date	Title/Description
Q4 2018	U.S. Production Capability Amid Section 232 This quarter's essay, "U.S. Production Capability Amid Section 232" examines the ability of future U.S. production to meet different quota scenarios that could arise from a remedy in the ongoing Section 232 investigation by the U.S. Department of Commerce.
Q3 2018	Economic Effects of Import Barriers on Nuclear Fuel This quarter's essay, "Economic Effects of Import Barriers on Nuclear Fuel" evaluates the impact of quotas and tariffs on nuclear fuel stemming from government intervention, specifically focusing on the recent Section 232 investigation.
Q2 2018	The Case for More Production Cuts This quarter's essay, "The Case for More Production Cuts" analyzes the current global supply/demand balance following the latest round of primary production cuts and suspension of U.S. DOE UF6 deliveries, suggesting that more production cuts are still necessary in 2018 through 2025 to bring the market closer to equilibrium if uranium prices are to have a sustained increase going forward.
Q1 2018	Examining Section 232 This quarter's essay, "Examining Section 232" analyzes the Section 232 petition filed by U.S. producers' Energy Fuels and Ur-Energy, alleging that the decline of U.S. uranium production is due to the unfair advantage of state-owned and state-supported producers under the Russian sphere of influence.
Q4 2017	The Growing Demand Gap This quarter's essay, "The Growing Demand Gap," highlights the significant reduction in UxC's Q3 2017 global demand forecasts since the Q3 2016 global demand forecasts, and how the latest round of downward demand adjustments in key countries – U.S., France, Japan, China, and South Korea – have been a major driver in the lowering of our uranium price forecasts.
Q3 2017	The Decline in U.S. Uranium Production This quarter's essay, "The Decline in U.S. Uranium Production," begins with a brief discussion covering the history of U.S. uranium production and its requisite – and sometimes violent – fluctuations due to changes in U.S. reactor demand. The essay also identifies and analyzes a multitude of negative factors facing the U.S. uranium producer today, which could potentially hinder the industry for years to come.
Q2 2017	The Emerging Production Cost Gap This quarter's essay, "The Emerging Production Cost Gap," discusses the potential factors that may lead to a production cost gap comparable to the price run-up of 2003 through 2007. While uranium supplies are abundant today, the current low-price environment and lack of term contracting could be setting the stage for production costs to rise significantly in the 2021-2023 period, especially as resource depletion begins setting in.
Q1 2017	The Maturing Nature of Kazakh Uranium Production This quarter's essay, "The Maturing Nature of Kazakh Uranium," addresses Kazatomprom's recent decision to reduce Kazakh uranium production and its impact on the market today and into the future. The essay also traces how Kazatomprom has slowly shifted from being largely an inelastic producer to one that is more elastic and attuned to market developments.
Q4 2016	Canada's Future Uranium Mines This quarter's essay, "Canada's Future Uranium Mines," provides a detailed look at the recent exploration swell throughout the Athabasca Basin in northern Saskatchewan. A handful of the region's most highly prospective uranium exploration projects are evaluated to determine which deposits could potentially prove to be the region's mines of tomorrow.
Q3 2016	Forward Prices and Today's Market This quarter's essay, "Forward Prices and Today's Market," examines UxC's 3- and 5-year forward price indicators, the construction of the forward price curve and the interrelationship of UxC's published prices with the curve, how forward prices relate to other price information, and why the emergence of the forward market and resulting forward price curve has been such an important development for the uranium market.
Q2 2016	China's Domestic Uranium Industry This quarter's essay, "China's Domestic Uranium Industry," examines China's domestic production capabilities and the role that country's domestic resources will play in meeting the country's rapidly expanding commercial nuclear power program. Additionally, the essay will discuss the role of overseas uranium resources and international trade in meeting China's expanding reactor requirements.
Q1 2016	The Role of Uranium Production Costs This quarter's essay, "The Role of Uranium Production Costs," discusses a wide range of factors impacting worldwide uranium production costs, as well as the usefulness of production costs as they relate to uranium prices, particularly in an environment where inventories continue to meet a significant portion of future demand at a significant discount to marginal production costs.
Q4 2015	Moving Toward a More "Rational" Market This quarter's essay, Moving Toward a More "Rational" Market discusses how the uranium market is now better able to absorb excess inventories and supply capability with the advent of mid-term contracting and the development of the forward price curve, along with the implications for price formation. In doing this, it compares today's market for uranium with that of ten years ago and with today's enrichment market.
Q3 2015	U-PRICE Model®: Projection of Ux LT U3O8 Price This quarter's essay, "U-PRICE Model®: Projection of Ux LT U3O8 Price" introduces a submodel of the U-Price model that focuses on projecting the long-term base price (Ux LT U3O8 Price) included in long-term uranium contracts through 2030.
Q2 2015	The Estimated Impact of Recycling on the U3O8 Market This quarter's essay, "The Estimated Impact of Recycling on the U3O8 Market" aims to quantify the impact that world recycling programs have on the natural uranium market, which is done by modeling the recycling programs at the reactor cycle level in the UxC Requirements Mode (URM) and calculating the amount of U3O8 displaced by the use of MOX and enriched reprocessed uranium (ERU).
Q1	Uranium Production Cutbacks and Delays

2015 This quarter's essay, "Uranium Production Cutbacks and Delays" highlights the production cuts/delays that have occurred over the last few years and analyzes whether the extent of these events have been enough to bring the market into greater equilibrium given the extent of the global uranium demand reduction since the Fukushima accident.

Q4 **Development of the UxC U-PRICE™ Model**

2014 This quarter's essay, "Development of the UxC U-PRICE™ Model" discusses the development of UxC's new econometrically-based model of the uranium market, which accounts for key factors influencing the market and better simulates uranium prices and related market variables.

Q3 **Ten Years Later: A Dramatically Changed Market**

2014 This quarter's essay, "Ten Years Later: A Dramatically Changed Market" looks at how the uranium market has changes in terms of supply, demand, and price information/market operation over the past ten years, along with the implications of this going forward.

Q2 **End of the HEU Agreement & New Market Fundamentals**

2014 This quarter's essay, "End of the HEU Agreement & New Market Fundamentals" estimates how much uranium is derived on an annual basis via underfeeding and tails re-enrichment from Russia's excess SWU capacity following the end of the HEU Agreement and in the post-Fukushima market.

Q1 **Niger Uranium**

2014 This quarter's essay, "Niger Uranium" analyzes Niger's current operating and potential future uranium projects, while also examining the issues impacting the contractual relationship between AREVA and Niger's government as both sides seek a more favorable ten-year mining contract.

Q4 **Is \$35 the new \$10?**

2013 This quarter's essay, "Is \$35 the new \$10" analyzes whether the spot price has hit a new valley following the Fukushima accident similar to that experienced in the 1990s when the spot price hovered around the \$10 level following the Chernobyl accident in 1986.

Q3 **Australia's Uranium Future**

2013 This quarter's essay, "Australia's Uranium Future" analyzes Australia's past, present, and future role as a global uranium supplier with an expressed emphasis on the various policies that govern the nation's uranium mining industry.

Q2 **Substituting U & SWU in the Nuclear Fuel Cycle**

2013 This quarter's essay, "Substituting U & SWU in the Nuclear Fuel Cycle" examines the bounds of substitutability between uranium and enrichment services, and establishes the most likely range for operating tails assays for the 2014 through 2030 period.

Q1 **U.S. Government Excess Uranium Inventory Disposition**

2013 This quarter's essay, "U.S. Government Excess Uranium Inventory Disposition" examines the various forms of excess uranium inventory held by the U.S. Department of Energy's and forecasts its disposition plans through 2030.

Q4 **Market Segmentation and Price Reporting**

2012 This quarter's essay, "Market Segmentation and Price Reporting" examines how the uranium market is divided into segments, and how this segmentation is reflected in price reporting. The essay notes that this segmentation is dynamic, and thus changes over time, with the most recent changes being the tightening of the spot market's time horizon and emergence of the "mid-term" market. Issues that arise given the different time dimensions of the market and how reported prices are used are discussed.

Q3 **Uranium Production in Russia**

2012 This quarter's essay, "Uranium Production in Russia," closely examines Russia's domestic uranium mining industry, highlighting its role in meeting the country's domestic and export requirements. The essay details ARMZ's operating mines, potential projects, and identifies the significant challenges to future domestic production growth.

Q2 **Development & Use of the Forward Curve in Uranium**

2012 This quarter's essay, "Development & Use of the Forward Curve in Uranium," follows the introduction of the forward price curve, which was developed in conjunction with Armajaro Securities Limited and released in the previous issue of the UMO. The essay details the construction of the forward price curve and discusses its various applications as well as impacts on market activity.

Q1 **Producer Consolidation – A New Round**

2012 This quarter's essay, "Producer Consolidation – A New Round," provides a retrospective on uranium consolidation and looks into the various drivers impacting consolidation today. The essay details recent consolidation that was spurred by a pullback of uranium prices following the Fukushima accident last March and provides a glimpse into how consolidation may evolve in the future.

Q4 **The Evolution of Uranium Price Information**

2011 This quarter's essay, "The Evolution of Uranium Price Information," looks at how uranium price information available to the industry has evolved over time, with the most dramatic changes coming over the past five years. The roles of financial players and commodity-style brokers in prompting these changes are examined. We also discuss in some detail the recent modification of our price definition in light of these changes, and look at potential ways in which price information may evolve in the future.

Q3 **Fukushima's Impact on Uranium Supply**

2011 This quarter's essay, "Fukushima's Impact on Uranium Supply" analyzes the impact of Japan's Fukushima accident on nuclear power generation and how this will affect projected uranium supplies, specifically inventories and production. In more detail, the essay highlights changes in UxC's mid production case scenario since the Fukushima accident, and also discusses how higher-cost uranium projects are likely to be delayed/deferred due to lower world demand and the poor global economic climate.

Q2 **Fukushima's Impact on Uranium Demand**

2011 This quarter's essay, "Fukushima's Impact on Uranium Demand" analyzes the impact of Japan's Fukushima accident on nuclear power generation and associated changes to UxC's three demand scenarios – Base, High, and Low – since the accident. In more detail, the essay evaluates how Fukushima has impacted nuclear utilities on a regional basis, examining changes to countries' nuclear energy policies and plans.

Q1 **U.S. Uranium Production: Past, Present, and Future**

2011 This quarter's essay, "U.S. Uranium Production: Past, Present, and Future" analyzes production of U.S. uranium throughout its history and includes a detailed analysis of all currently operating and near-term U.S. uranium mines. Furthermore, the essay analyzes U.S. uranium production in terms of its future viability, and a breakdown of the issues that face expanded future U.S. production.

Q4 **China's Uranium Supply: Feeding a Growing Tiger**

2010 This quarter's essay, "China's Uranium Supply: Feeding a Growing Tiger" analyzes all elements of the uranium story in China, including the key demand elements as well as the supply of U3O8, while identifying the future direction China needs to take in order to completely satiate its growing hunger for uranium concentrates and the impact this will have on the global uranium market.

Q3 The Evolving Price Information Picture
2010 This quarter's essay, "The Evolving Price Information Picture" looks at additional price information that is now being supplied by the Euratom Supply Agency and the uranium futures market. It also examines the relevance of this information, its relation to existing prices, and the potential to use this information with respect to contract price determination and to combat price volatility.
Q2 Niger – Preparing for 40 More Years?
2010 This quarter's essay, "Niger – Preparing for 40 More Years?" examines Niger's history and culture, its mining infrastructure, lasting ties to France's nuclear program, operating and planned mines, current political situation, and implications of Niger's uranium production on future prices.
Q1 Uranium Silk Road: Rise of Central Asia in the Uranium Market
2010 This quarter's essay, "Uranium Silk Road: Rise of Central Asia in the Uranium Market" examines the role of Central Asian production in the uranium market. While Kazakhstan is clearly the most well-known producer in this region, it also includes the former Soviet Republics of Kyrgyzstan, Tajikistan, and Uzbekistan, as well as Mongolia. The essay looks at the potential for uranium production in these countries as well as the competing interest in Central Asian projects by China, South Korea, Japan, and Russia.
Q4 Uranium versus Thorium
2009 This quarter's essay, "Uranium versus Thorium," examines the future role of uranium and thorium in the fuel cycle. In doing so, it compares and contrasts the characteristics of each fuel type, and discusses the upsides and downsides of each. The essay also looks at the implications of a possible transition to a thorium cycle, and points out the complementary nature of uranium and thorium as fuel for reactors.
Q3 Uranium Politics
2009 This quarter's essay, "Uranium Politics," examines the impact of politics on the uranium market by focusing on both historical and recent developments in Kazakhstan, Niger, and Australia. In doing this, we incorporate results from our recent survey of the industry, which sought feedback on reactions to the Kazatomprom management shake-up, along with views on the geopolitical risk associated with uranium producing countries.
Q2 The Long-Term Price in Concept and Practice
2009 This quarter's essay, "The Long-Term Price in Concept and Practice," examines UxC's reporting of the long-term price over the past five years, current challenges, and our approach going forward. Subjects examined include a closer look at the role of long-term prices, the issues associated with using long-term prices as price references in long-term contracts, and a complete overview of how UxC approaches the reporting of these prices.
Q1 Into Africa
2009 This quarter's essay, "Into Africa," examines the potential role that uranium production in Africa can play in supporting the nuclear renaissance and in terms of price formation, while assessing the impact that the financial crisis might have on production expansion and briefly reviewing the historical role of African production.
Q4 The Financial Crisis and the Uranium Market
2008 This quarter's essay, "The Financial Crisis and the Uranium Market," examines the both the short-term and potential longer-term impact of the world financial crisis on uranium, identifying the variety of ways it can impact the market.
Q3 Dealing with Price Risk in the New Market Environment
2008 This quarter's essay, "Dealing with Price Risk in the New Market Environment," examines approaches to address price volatility over the past year following the tremendous price excursion of 2007.
Q2 The Kazakh Phenomenon
2008 This quarter's essay, "The Kazakh Phenomenon," examines the tremendous expansion of production in Kazakhstan and the factors behind this expansion, planned growth in future production and potential impediments to this growth, and Kazakhstan's desire to get involved in other areas of the fuel cycle as part of its expansion strategy.
Q1 Production Plans versus Realities
2008 This quarter's essay, "Production Plans versus Realities," looks at the key role that production response plays in price formation, and utilizes the results from regression analysis to project future Eastern and Western production, comparing these projections with ones based on producers' plans.
Q4 Production Costs and Their Role in Price Formation
2007 This quarter's essay, "Production Costs and Their Role in Price Formation" details how production costs influence the formation of prices and why a simplistic approach to relating price to costs is likely to either greatly overstate or understate what price should be. It also examines the relationships of current prices to production costs.
Q3 Has Price Peaked?
2007 This quarter's essay, "Has Price Peaked?" addresses the question of whether the long run of the bull market is over from a number of perspectives, including preliminary results of our market survey, historical trends in price, and observations on what new patterns of price might look like.
Q2 Uranium Futures Contracting in Theory and Practice
2007 This quarter's essay, "Uranium Futures Trading in Theory and Practice" addresses the introduction of a uranium futures contract, how futures contracts work and what their benefits are, preliminary results of futures trading, other derivatives products in uranium, and implications of futures trading for the market.
Q1 How High Can Price Go? (And What Will Make It Come Back Down?)
2007 This quarter's essay addresses the prospects for uranium prices in the wake of their doubling last year by examining the forces that led to the reversal of oil prices last year and the reasons behind the price declines following the two previous price booms in uranium.
Q4 Price Expectations and Price Formation
2006 This quarter's essay, "Price Expectations and Price Formation," is based on a paper that UxC President Jeff Combs gave at the recent Nuclear Energy Institute International Uranium Seminar in Quebec, and examines the nature of past price expectations and how they have shaped the current market through their effect on supply and demand.
Q3 The Russian Chronicles
2006 This issues essay recounts the various announcements and developments with respect to Russian nuclear fuel and nuclear power – including the decision not to go forward with an HEU-II deal, and discusses what the implications of these may be for the future of the market.
Q2 Shortage or Speculation?
2006 This quarter, the essay, "Shortage or Speculation," examines the question of whether the recent changes in contracting and approaches to the market reflect a true shortage or more indication of increased speculation surrounding the near-term course of the market.
Q1 Uranium and Nonproliferation Demand
2006 This quarter, the essay, "Uranium and Nonproliferation Demand," looks at how nonproliferation policies such as the Reliable Fuel Supply concept and the potential for opening up trade with India can affect the nature of the uranium market going forward.

Q4 Another Boom/Bust Cycle?
2005 This quarter, the essay, "Another Boom/Bust Cycle?" looks at the potential for price to turn down dramatically by examining factors that caused the price bust of the late 1970s and comparing these with trends today.
Q3 The Supply Gap and the Role of Junior 'Mints'
2005 This quarter, the essay, "The Supply Gap and the Role of Junior 'Mints'" examines junior producers that are positioned to take advantage of the \$30 market and fill a portion of the supply void that exists over the next few years and beyond.
Q2 A Matter of Perspective
2005 This quarter, the essay, "A Matter of Perspective," examines the price increases of the late 1970s and 1995/1996, identifying what caused these increases and the subsequent declines, in order to provide some perspective to the current price excursion.
Q1 What Supply Gap? - A Contrarian View
2005 This quarter, we present an essay that suggests the supply situation might not be as dire as is commonly believed, along with a counter to this line of argument in "What Supply Gap? - A Contrarian View."
Q4 Is Past Prologue for the Uranium Market?
2004 This quarter, we examine whether the historical relationship between price and production has any implications for future price movements, or whether a new paradigm is at work with the growing influence of mega-projects.
Q3 The Awakening Giants and Their Appetite for Uranium
2004 This quarter, we take a look at the impact that China and India may have on the market given their plans to expand the nuclear power programs to meet their increasing energy needs.
Q2 Russia's Changing Role in the Nuclear Fuel Market
2004 In this essay we examine Russia's changing role in the nuclear fuel market that has resulted in such actions as the decision last year to terminate the GNSS contract.
Q1 A Review of World Primary Production
2004 This quarter, we take a look at worldwide uranium production, examining existing and planned uranium projects that will serve to meet utility requirements over the next ten years.
Q4 Changing Market Fundamentals-Implications for Price
2003 In this issue we take a look at the changing market fundamentals in uranium and what this means for future prices. This investigation follows an examination of price movements from a technical perspective in the last issue's essay.
Q3 Uranium Price Patterns Revisited
2003 This quarter, we review the recent rise in price in the context of our earlier (April 2001) essay on examining the uranium market from the standpoint of technical analysis.
Q2 Analyzing Market Impacts of the McArthur River Flood
2003 In this essay we examine the short and potential long-term impact of the McArthur River mine flood.
Q1 Eastern Primary Production
2003 This quarter, we take an in-depth look at the status of uranium production in the Former Soviet Union, Eastern Europe and China, as well as its role in meeting each country's future requirements.
Q4 A Review of Western Primary Production
2002 This quarter, we take an in-depth look at Western primary production and its increasing importance in meeting future requirements.
Q3 The Future of Nuclear Power in Europe - Is the Tide Turning?
2002 In this essay we examine past and current developments and future prospects for nuclear power in Europe
Q2 Russia's Nuclear Power Industry: Prospects and Problems
2002 As a special feature we have asked Oleg Bukharin, an expert in Russian nuclear matters at Princeton University, to review the Russian nuclear power program and examine its future prospects, both home and abroad.
Q1 A Review of Eastern Primary Production
2002 This quarter, we take an in-depth look at the status of uranium production in the Former Soviet Union, Eastern Europe and China, as well as its role in meeting each country's future requirements.
Q4 A Review of Western Primary Production
2001 This quarter, we take an in-depth look at Western primary production and its increasing importance in meeting future requirements.
Q3 The Remarkable Growth in U.S. Uranium Requirements
2001 This quarter, we examine the tremendous growth in U.S. reactor requirements that has occurred without new reactor additions and the prospects for such growth in the future.
Q2 Uranium Price Patterns
2001 An in-depth look at uranium price patterns that describes their importance in discerning future market trends.
Q1 Uranium Production in the FSU - What Happens Now?
2001 A detailed review of production in the Former Soviet Union, the second part of our series on changes in production supply.
Q4 The Evolution of Production Supply
2000 An in-depth look at how production supply has changed over the past year.
Q3 Key Transitions Affecting the Future Market
2000 The second part of our investigation about what is happening to uranium prices.
Q2 What's Happening to Prices?
2000 Analysis of the factors causing the currently depressed uranium prices.
Q1 Current Developments in U.S. Trade Restrictions
2000 An examination of the Sunset Review process, with potential outcomes and market impacts.
Q4 The Evolving Supply Picture and Implications for Price

1999 A review of how world uranium supplies have changed over the recent past.

Q3 The Saga of CIS Trade Restrictions: Past, Present and Future

1999 A review of the history of the CIS trade restrictions and their influence on the market.

Q2 Examining the HEU Feed Deal

1999 Analysis of the Russian HEU feed deal, including its key features and market implications.

Q1 The Pendulum Swings

1999 An examination of the supply developments that occurred during 1998. Over the last half of 1998, the outlook for the market changed dramatically, as production was cut back and inventory sales plans were modified in light of a potential severe oversupply situation that had negative implications for price.

Q4 The Changing Supply and Demand Picture

1998 This quarter, we present our annual review of production plans, inventory supplies, and requirements forecasts in Section 1 - The Changing Supply and Demand Picture. The implications of changes in these projections for the balance between Western production and the demand for this production are also examined in this section.

Q3 Market Impact of USEC Inventory Sales

1998 The U-PRICE uranium market model is used to examine the potential impact on price of USEC uranium sales, based on information released with respect to USEC's public offering.

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