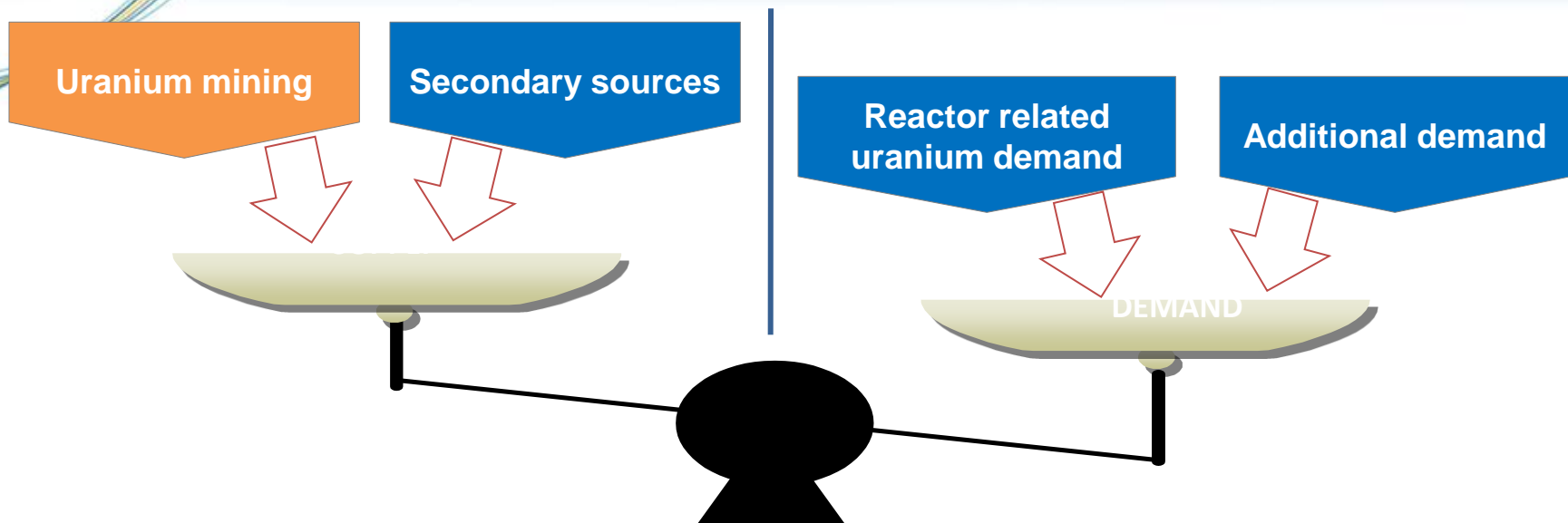




## **Russian uranium mining industry diversification strategy**

Alexander Boytsov,  
Deputy director general, ARMZ Uranium Holding

08.06.2011



## The main factors of demand/supply relationship

- Favorable uranium prices
- Sufficient and qualitative uranium resources
- Sufficient uranium production capacities
- Staffing

- HEU-LEU Program
- US policy in the uranium inventory reduction and stock balance selling
- Policy in spent fuel and HEU recycling

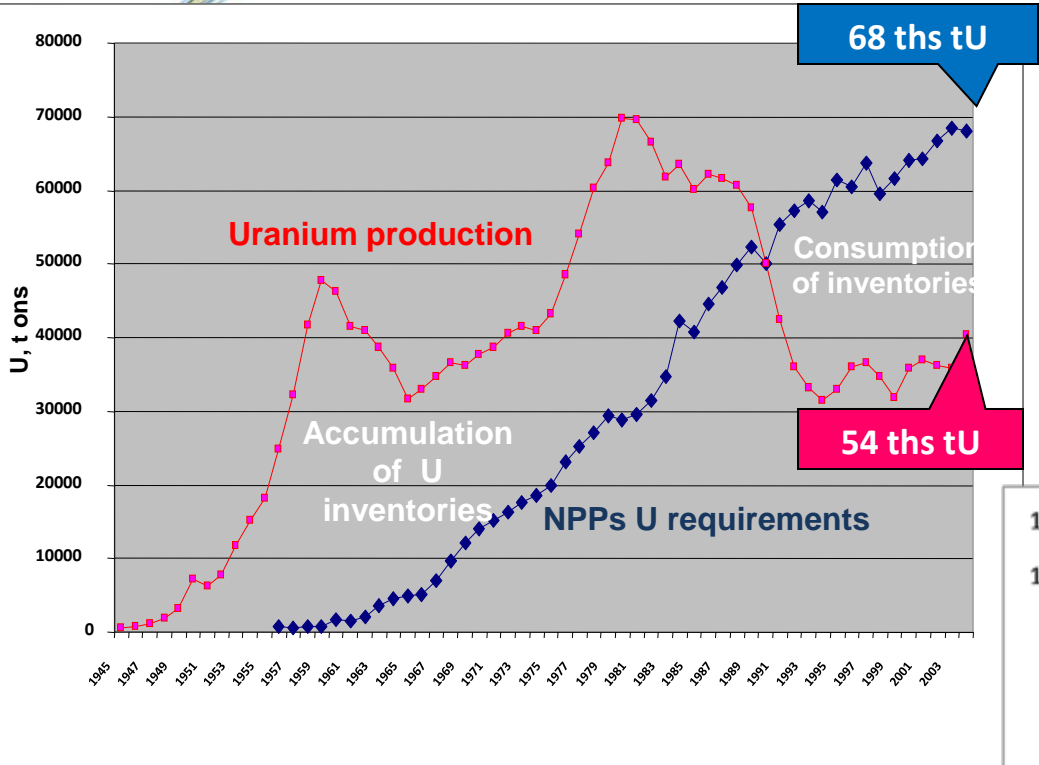
- Countries' policy in atomic energy
- Trends in new NPPs construction
- NPP's operation time extension
- NPPs decommissioning

- Uranium as a trading commodity (stocks trading)
- Energy companies stockpiles

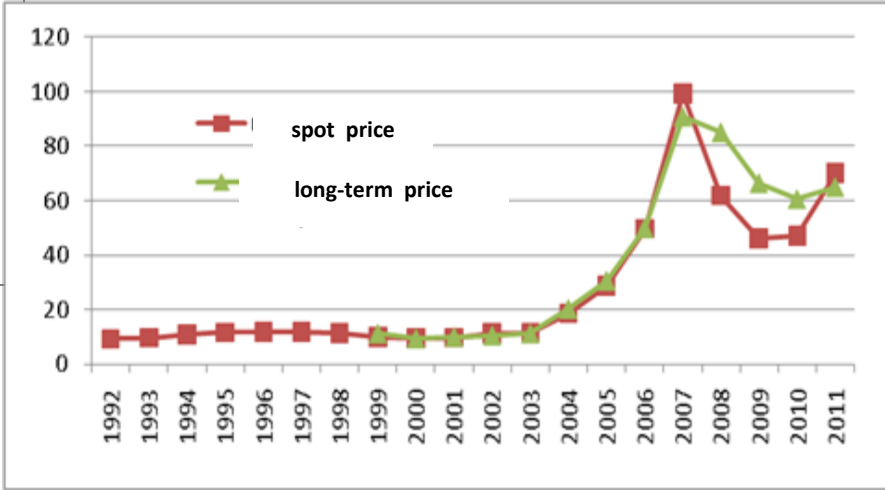
**Key issue of the atomic energy development – sustainable and long-term uranium supply**



# Historical uranium production vs NPPs demand



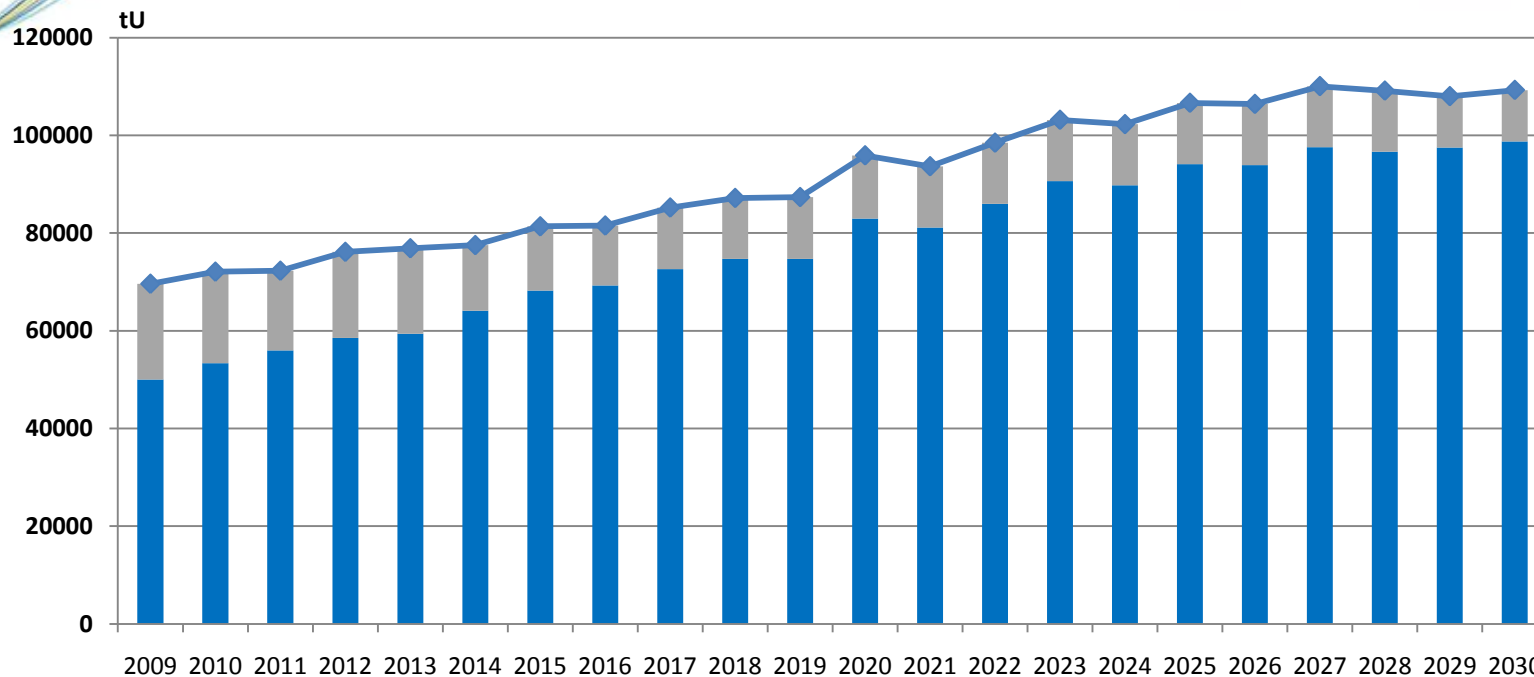
Since 1945	Ths. tU
Produced	2 468
Consumed	1 919
Stockpiled	549



The last 20 years – uranium production covered about 40% of uranium demand. The difference was covered by inventories and secondary sources. Low uranium prices did not stimulate uranium production.



# Projected U requirements to 2030



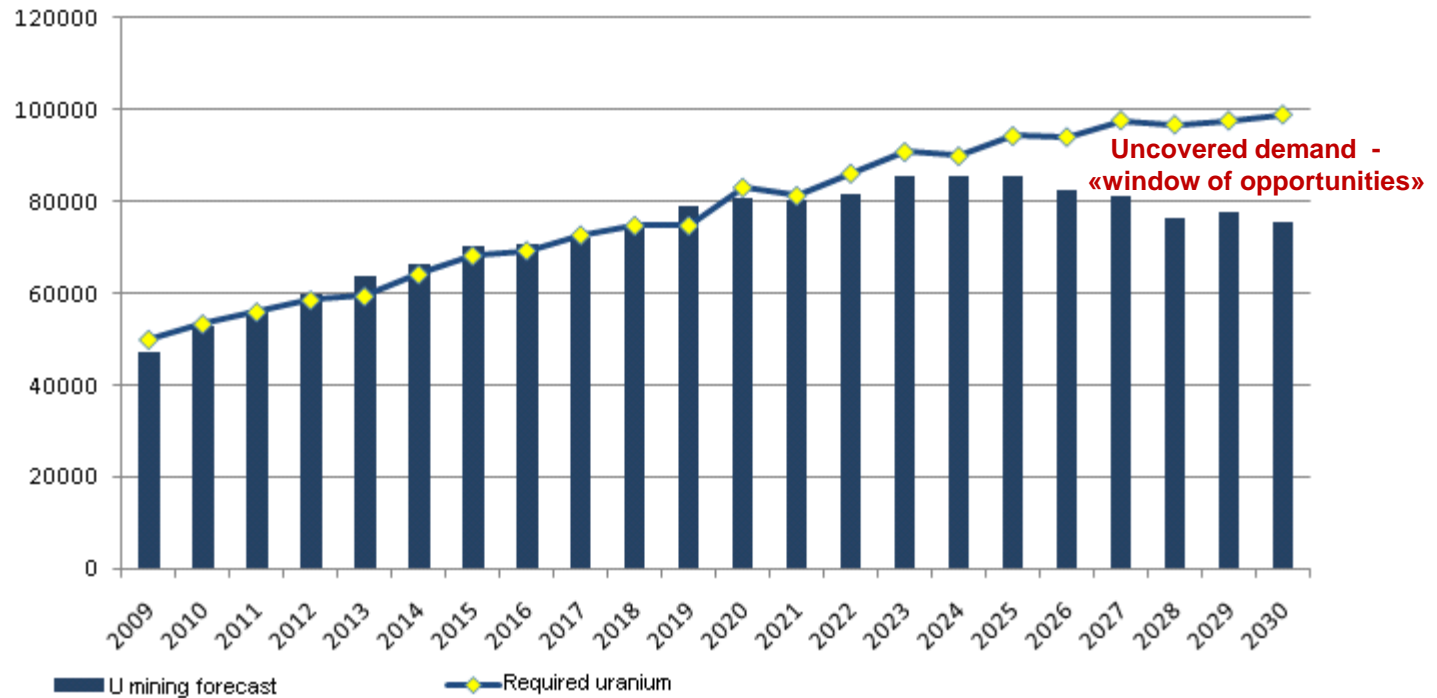
WNA 2009, reference scenario  
Additional demand (inventories, investors, hedge funds) – 5% of plant requirements

■ U production  
■ Secondary sources  
◆ Total U requirements

## WNA 2009 Nuclear Fuel Market Report:

Reactors requirements growth from 68,000 to 104,000 tU to 2030 (53%)

Uranium production needs to increase from 54,000 to 99,000 tU



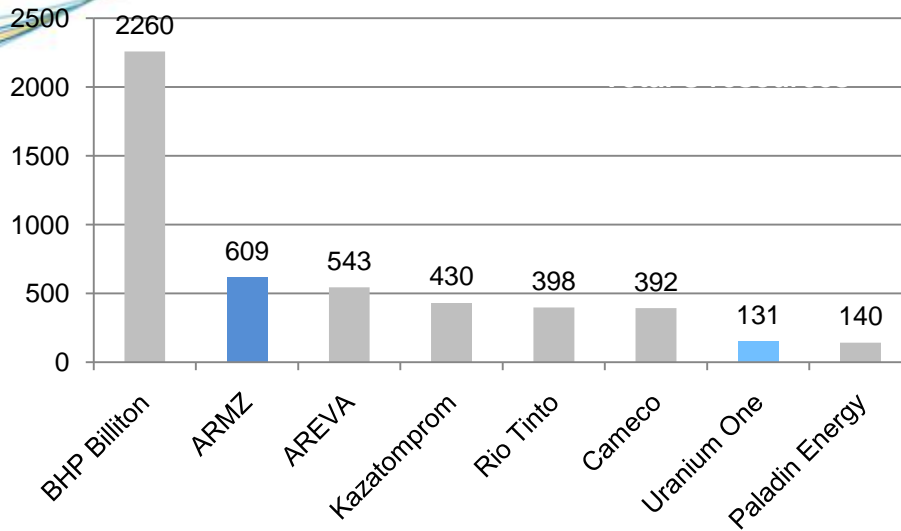
## Stages of the uranium industry development

- 2010- 2020 - reactor demand covered by uranium production
- after 2020 - uranium production shortage
- after 2025 – decrease of uranium production and production capacity shortage (decommissioning of some mines due to U resources depletion)

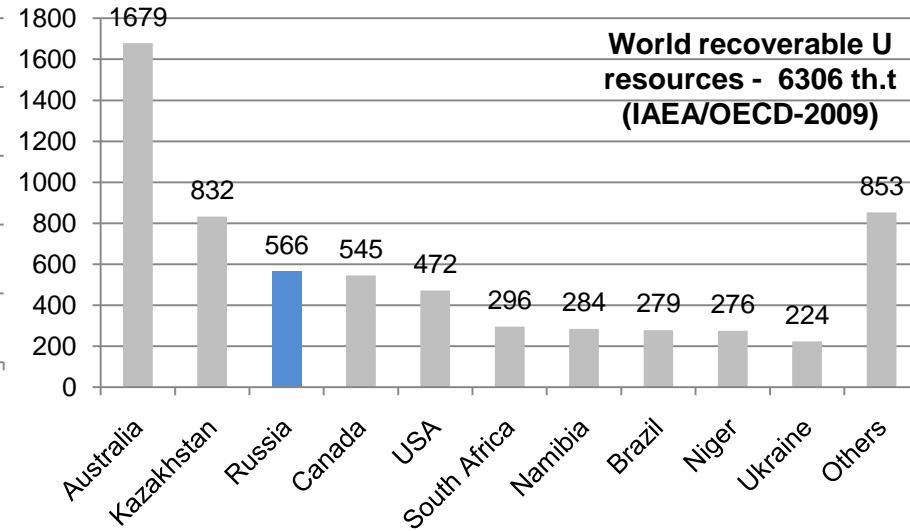


# U resources is a key factor for sustainable development of uranium production

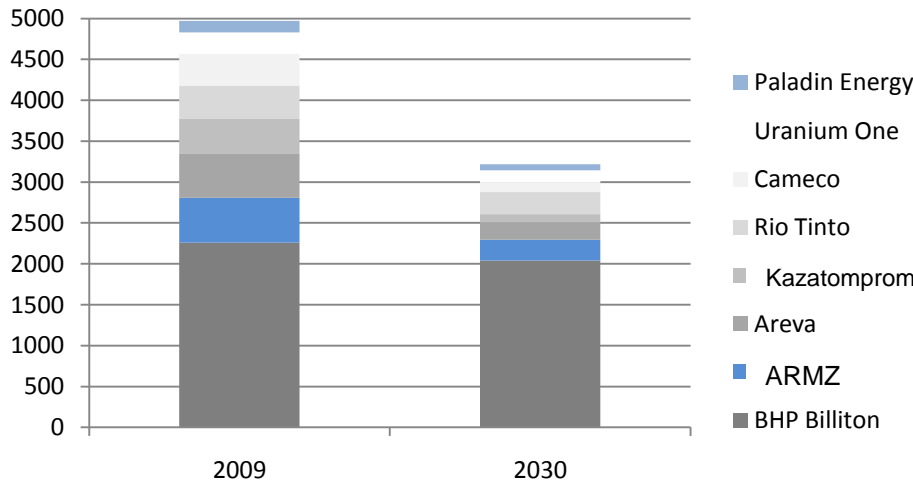
### Uranium resources by leading companies, th.tU



### Uranium resources by countries, th.tU



### Exhausting of U resources by leading companies th.tU

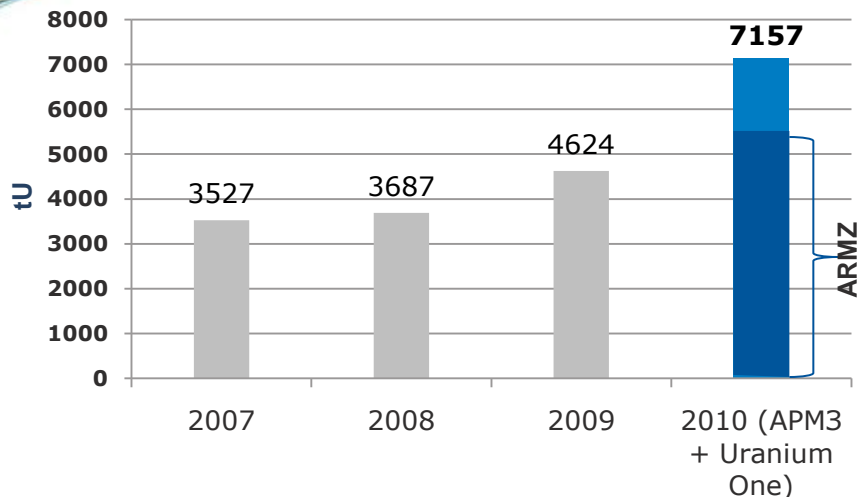


- leading companies will produce about 1.8 million tons of uranium in 2009-2030 (U resource consumption - 37%)
- 62% of the total U resources by 2030 will be in the Olympic Dam (copper-main commodity)
- U resources of primary uranium mines will be reduced by 2030 more than two fold

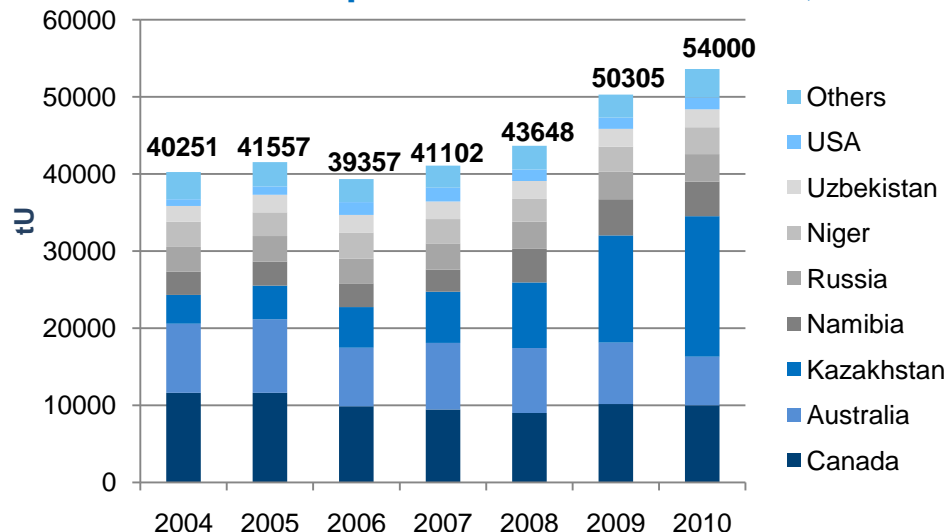


# World uranium production at a glance

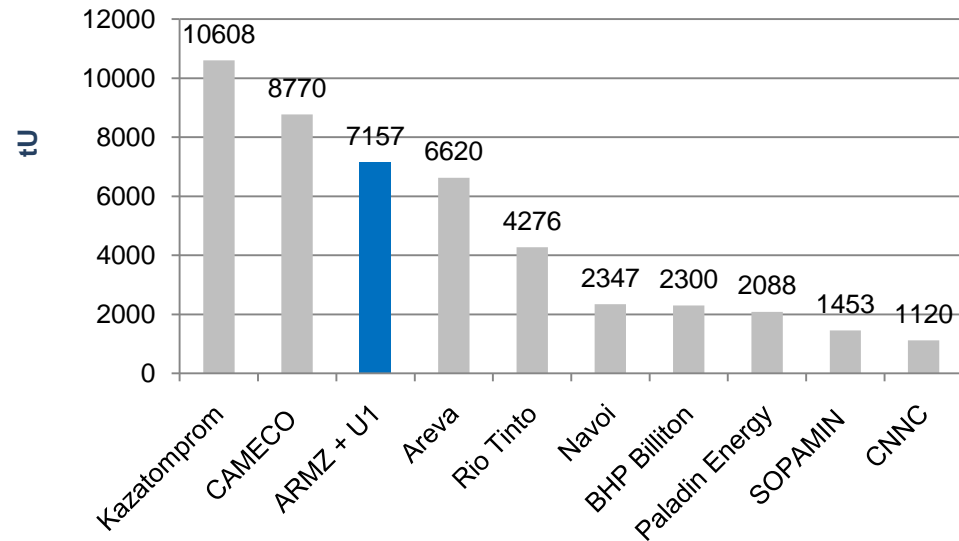
## ARMZ uranium output 2007-2010



## World uranium production in 2004-2010, tU



## ARMZ+U1 – third place in U production



- **ARMZ – U1 alliance holds third place in 2010 global uranium production after Kazatomprom and Cameco.**
- **As for U production growth rating, ARMZ – U1 alliance holds second place among largest uranium producers.**
- **The main uranium output growth was due to development of JVs in Kazakhstan**
- **Russia ranked sixth among countries by uranium production**



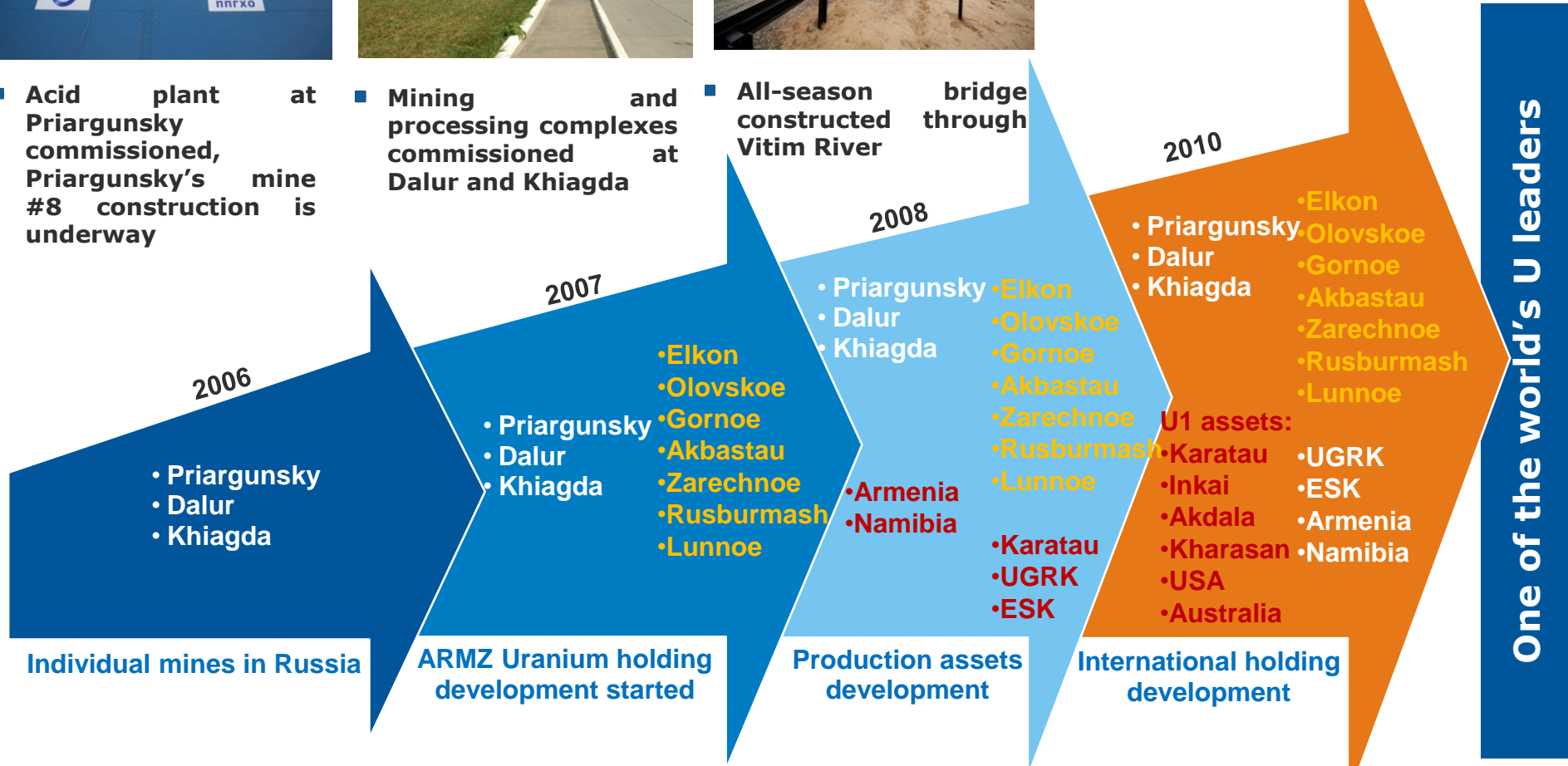
- Exploration and designing activities for new uranium deposits in Russia (Elkon, Olovskoe, Gornoe) are underway
- Special service companies (Rusburmash, ESK) established



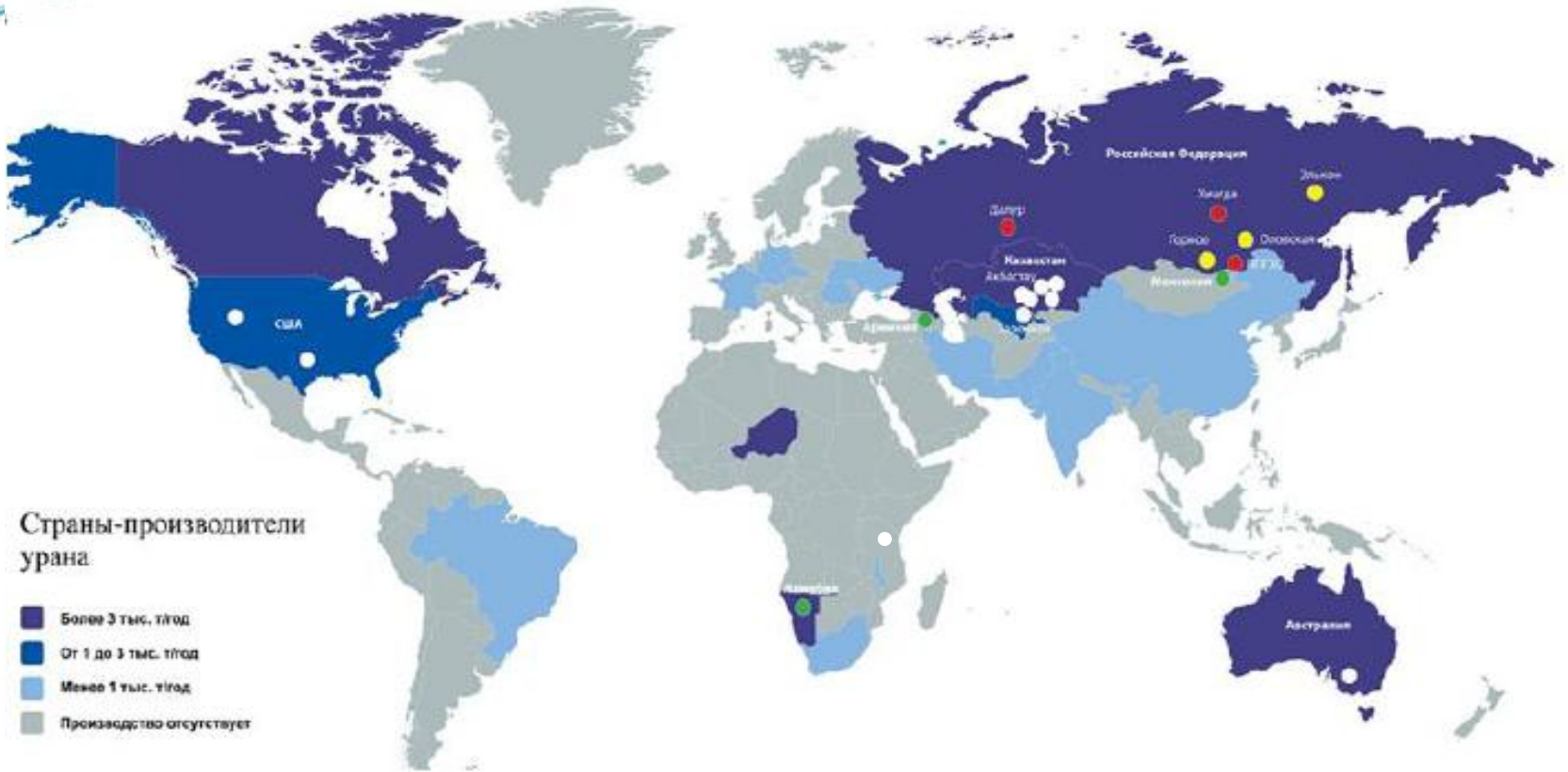
■ Acid plant at Priargunsky commissioned, Priargunsky's mine #8 construction is underway

■ Mining processing complexes commissioned at Dalur and Khiagda

■ All-season bridge constructed through Vitim River










Existing and under construction mines

Planned mines


ARMZ-U1 alliance

Exploration and new projects


## Exploration / Perspective

-  | Mongolia
-  | Armenia
-  | Namibia

## Designing / Exploration

-  | Elkon  
Gornoe  
Olovskaya  
Lunnoe

## Construction

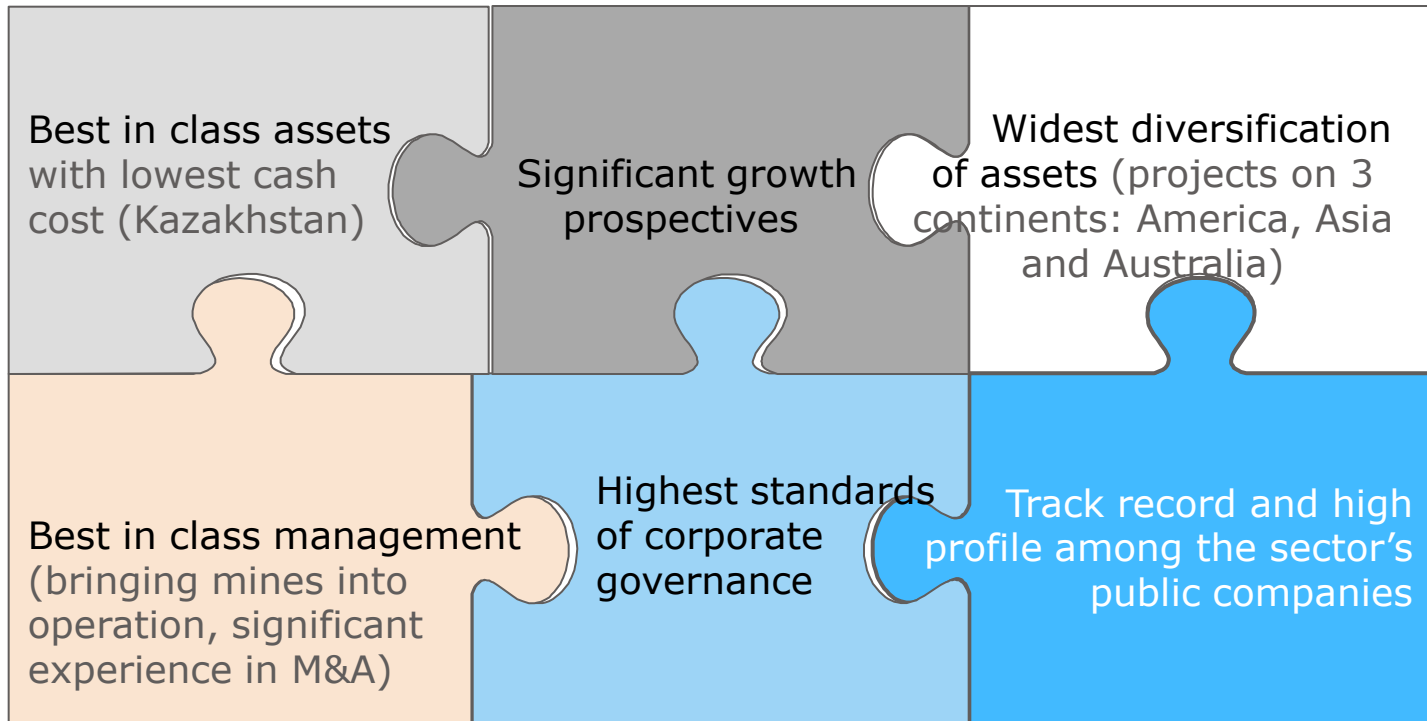
-  | Khiagda
-  | Honeymoon  
US ISL  
N.Kharasan

## Production

-  | Akbastau
-  | Priargunsky
-  | Karatau
- Zarechnoe
- Dalur
- Akdala
- S.Inkai

**ARMZ strategy —  
through  
diversification to  
world's leadership**





## Assets Overview

### Asset Quality

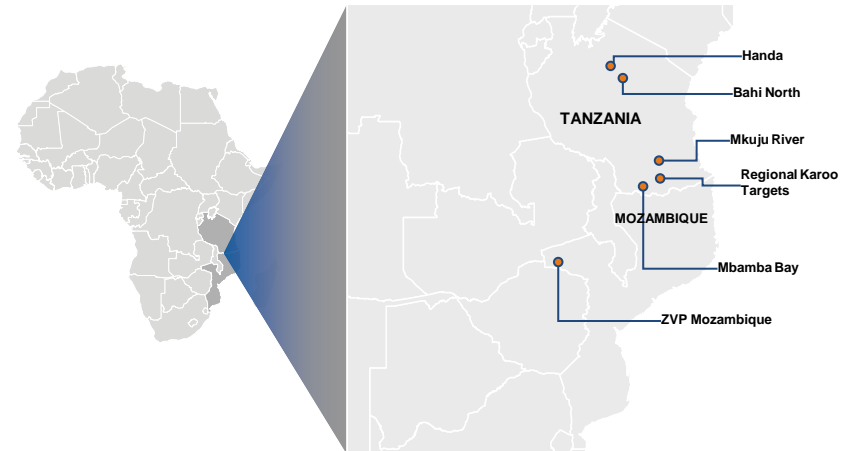
- Sandstone-hosted deposit located within the Karoo sediments
- Multiple stacked mineralized horizons of variable thickness at shallow depths (i.e. less than 100 m)
- Relatively low technical risk based on preliminary scoping study and metallurgical work
- No drilling and blasting required
- Government has been very supportive of the mining industry

### Exploration Upside

- Significant resource increase potential within existing licenses
- Nyota Prospect only covers 100 km<sup>2</sup> of 3,250 km<sup>2</sup> land package
- 100 km<sup>2</sup> of airborne radiometric anomalies detected
- Higher grade mineralization has been observed at surface in outcrops and trenches

**The flagship Mantra's Mkuju River project (Tanzania) is low cost, near term production, significant potential to increase resources and life of mine.**

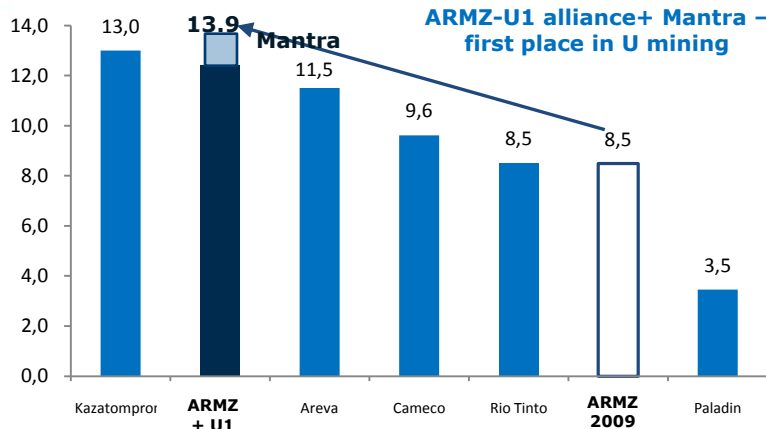
## Project Geography



## PFS results overview

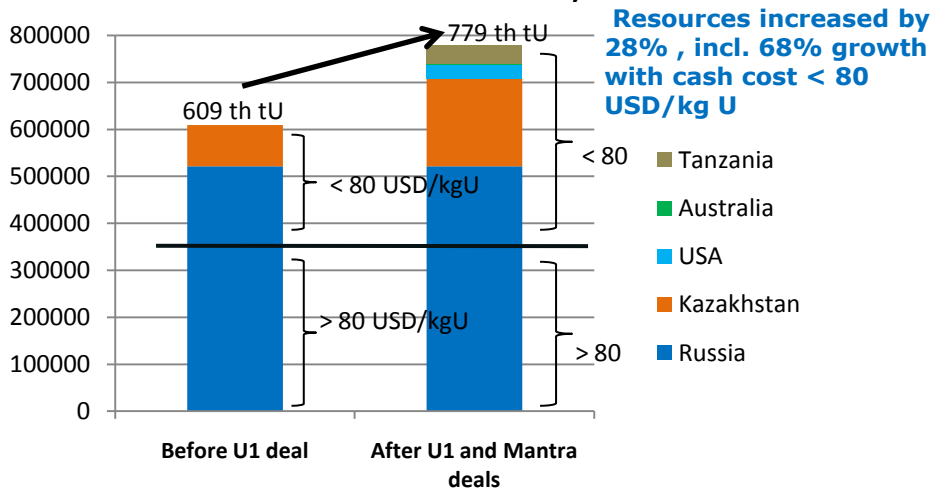
	PFS
LOM Production	~3.7 mm lbs U <sub>3</sub> O <sub>8</sub> per annum
Mine Life	12 years, with potential to increase
Mining Grade	308 to 586 ppm U <sub>3</sub> O <sub>8</sub>
Recovery	85% recovery and low acid consumption
LOM Avg Cash Cost	US\$28.06 / lb U <sub>3</sub> O <sub>8</sub>
Development Capex	US\$298.1 million

## Uranium production in 2015, thou tU



- **ARMZ – Uranium One will be one of the leading global uranium producer. It preliminary ranks second in production volume by 2015.**
- **Further U resources strengthening, especially in the lowest cash cost category.**
- **The increase in market capitalization and the ability to attract investment, using all the market mechanisms.**
- **Excellent potential for further ARMZ – Uranium One growth.**

## ARMZ attributable resources , tU



**Deal with the Uranium One is the first and most important step in ARMZ strategy**



# ARMZ strategy – sustainable leadership



- Russian uranium deposits
- Effective low-cost uranium production assets abroad

**Sustainable uranium supplies**

**Exploration activities over the world**

**Diversification in prospective non-uranium metals (REE, gold, zirconium, etc.)**

**Diversified producer with world-class assets**