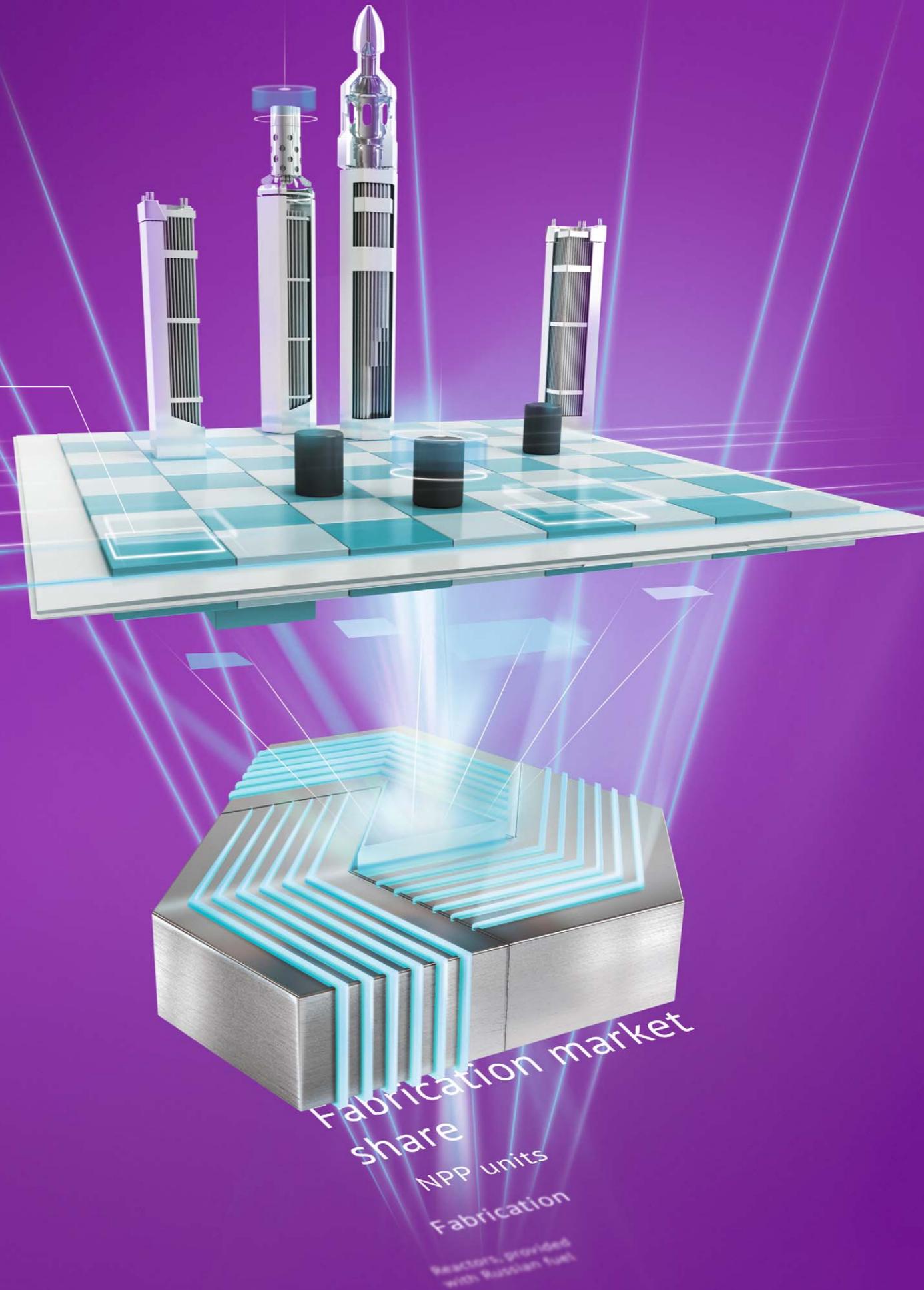


Chapter 2 DEVELOPMENT STRATEGY AND EXTERNAL ENVIRONMENT

Transforming plans
into results

Doing our utmost to achieve results means having a clear vision. Business expansion and successful partnerships are our primary guides once established and, since then, keeping us on track towards global presence, broader product offering and project expansion.



DEVELOPMENT STRATEGY AND EXTERNAL ENVIRONMENT

Place of TVEL FC in the World Market of FE NFC

GRI G3.1: 2.7 2.5

TVEL FC is the world leader in nuclear fuel production and uranium enrichment services.



Fabrication market share

17%*

Enrichment market share (together with JSC Technobexport)

48%**

Fabrication

Key Competitors and their Market Share, %

Enrichment

competitor	Value in the year of report	competitor	Value in the year of report
AREVA	30%	URENCO	30%
Westinghouse Electric Company	31%	AREVA	10%
GNF	17%	China	5%
Other	5%	Other	7%

* 17% on the market of fabrication in 2012; 16% in 2011.

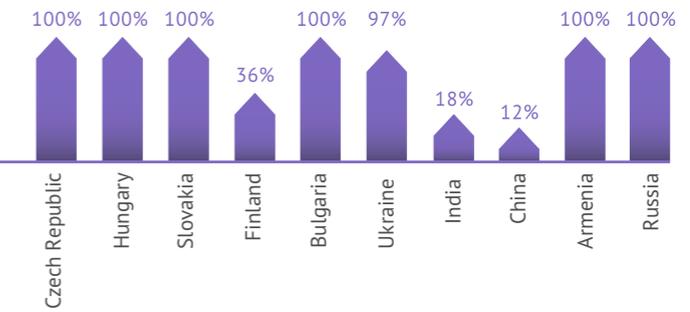
** 45% on the market of enrichment in 2012 and 2011 (together with JSC Technobexport).

Number of reactors provided with Russian fuel, ea

76



Nuclear power plants running on fuel made in Russia, %



NPP units in operation, worldwide/Russian Federation, as of December 31, 2013

437/33

Countries where NPPs are under construction as of December 31, 2013

15

Export orders by products and services of FE NFC over a period of 10 years

10,9 USD bln.

NPP units under construction, worldwide/Russian Federation, as of December 31, 2013*

72/10

TVEL FC – proceeds from exports in 2013

1,5 USD bln.

* According to IAEA, including floating nuclear power plants (FNPP).

GRI G3.1: 1.2

FE NFC Global Market Seen by TVEL FC

Conditions and tendencies in development of the global fleet of nuclear reactors represent basic factors that affect the international market of products and services with respect to the front end nuclear fuel cycle. Despite the Fukushima meltdown in 2011 that had quite an impact on the plans of a number of countries with respect to commissioning of new nuclear power-generating facilities, nuclear industry is still an integral part of the global power sector.

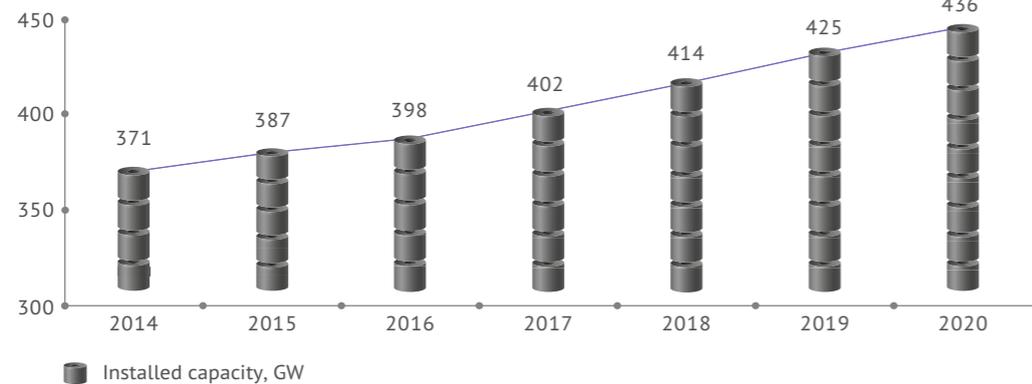
The international market of nuclear power generation is expected to grow due to China, India, Southeast Asia (Vietnam), Middle

East (Saudi Arabia, UAE) and Africa (SAR). The European market will remain stable by replacing the outdated facilities with the new ones. The U.S. market is now being flooded by shale gas at affordable prices, causing the active expansion of the share of gas burning power plants. According to optimistic scenario, the nuclear power sector of the U.S. will retain its share, or will start shrinking under the opposite scenario.

According to the forecasts, the installed capacity of nuclear power sector worldwide will approach 400 GW by 2015.

Nuclear Power Market Outlook – Ux Consulting version (installed capacity, GW)

© Ux Consulting Uranium Market Outlook Q4 2013



“The decrease in the use of nuclear power or replacement thereof by the alternative sources in many countries will continue no longer than five to ten years”.

Y.A. Olenin, President of TVEL FC

Uranium Conversion and Enrichment Markets

Main events on the international uranium conversion and enrichment markets in 2013:

- **ConverDyn (Metropolis, IL) plant resumes operation.**
Based in the state of Illinois (U.S.), this is the only conversion plant in the United States that makes uranium hexafluoride for further enrichment and use as a fuel in nuclear reactors. The plant was shut down in May 2012 for upgrade of its safety systems in response to the Fukushima meltdown. The plant restarted in the summer of 2013, enabling it to supply up to 15,000 tons of uranium hexafluoride a year. This may boost the competitive edge of the U.S. market of conversion;

- **USEC shuts down its gaseous diffusion plant in Paducah (KY), problems with funding of the American Centrifuge project and the threat of bankruptcy for the company.**
Shutdown of gaseous diffusion plant (which was economically less efficient in comparison to the gas centrifuge technology that dominates the market) caused the average price on enrichment services drop around the world. According to TradeTech, spot price on enrichment dropped from USD 110 to USD 99 per SWU from late May to December 2013;
- **CNNC (China) successfully makes the first batch of enriched uranium using its own gas centrifuge technology in Lanzhou.**
Ability to satisfy the growing demand for uranium enrichment nationwide may be the first step of the Chinese manufacturers to active advance on the global market of enrichment;
- **AREVA (France) and URENCO (U.S.) increase the output at Georges Besse II and URENCO USA enrichment plants accordingly.**
In 2013, AREVA and URENCO continued the expansion of their uranium enrichment facilities using the gas centrifuge technology of ETC company. Commissioning of new facilities will boost competition on the global market of uranium enrichment;
- **Completion of HEU-LEU program.**

UxConsulting Composite Forecast of SWU Price

© Ux Consulting Uranium Market Outlook Q4 2013



The price of SWU commenced its decline in 2012 and continued in 2013. By the end of the period of report, it dropped to USD 114 per SWU under the long-term contracts. Based on the adjusted forecasts, the analysts expect the decline to stop by the end of 2015 at USD 108 per SWU and the price will start growing slowly again.

NF Fabrication Market

In 2013, the global market of NF saw major events, such as:

- **AREVA (France) resumed deliveries of MOX-fuel to Japan after a pause caused by the Fukushima meltdown.**
The resumed deliveries of nuclear fuel to Japan indicate that Japanese NPP operators intend to resume generation of electric power. This delivery signals to the global market of FE NFC about revival prospects of Japanese market;
- **CNNC and CGNPC went back on building nuclear fuel plant in Guangdong province (China).**
The original intention was for the plant to consolidate three FE NFC stages (conversion, enrichment and fabrication) on the same site. By tabling the construction plans, CNNC retain its monopoly on the domestic market of China.

International Economic Activities of TVEL FC

TVEL FC interacts with its international partners in the sphere of business, science and engineering in accordance with applicable international contractual framework.

To promote its interests in international cooperation, in 2013 TVEL JSC, acting in conjunction with ROSATOM State Corporation, delegated officers of its sector-specific divisions to participate in drafting of a number intergovernmental and interdepartmental agreements, inclusive of Republic of Korea, Japan, France, Hungary and Finland. In 2013, the Company also coordinated intergovernmental (Russia-Hungary and Russia-Finland) agreements on cooperation in the sphere of peaceful use of nuclear power (intergovernmental agreement were signed in early 2014).

Intergovernmental agreement with Finland outlines framework for participation of the Russian Federation in the Finnish nuclear sector development program and makes provisions for a number of separate agreements for implementation of individual joint projects, such as drafting the Hanhikivi NPP project.

Russia-Hungary intergovernmental agreement makes provisions for new power units at Paksi NPP and delivery of Russian fuel to them.

TVEL FC thoroughly performs all international obligations of the Russian Federation and requirements of the national export control regulations.

The Fuel Company boasts a number of properties indicative of its long-term sustainability in conditions of increasing competition on international market of FE NFC products and services.

TVEL FC has enterprises engaged in separation-sublimation and fabrication cycle enabling the Company to offer FE NFC products and services in the form of package deliveries. Ultimately, it contributes to flexible contract pricing and optimized transport logistics. With a number of enterprises in each

FE NFC cycle, the Company is able to make highly reliable deliveries.

The Fuel Company is sufficiently competent to supply fuel for reactors designed in Russia, light-water reactors designed in the West (PWR and BWR), and components for PHWR abroad. The Company is successfully manufacturing nuclear fuel from reprocessed uranium in compliance with requirements of European regulators to manufacture technology and to the products.

Key events for TVEL FC in 2013 with respect to its international business:

- renewal of contract for the delivery of fuel to Dukovany NPP (Czech Republic) in 2014–2028;
- contract for delivery of fuel and components for Unit 3 and Unit 4 of Tianwan NPP (China);
- fuel delivery contract for the commissioning and further operation of Hanhikivi NPP (Finland);
- successful qualification of TVEL JSC (JSC CMP) by CANDU Energy Inc. (Canada) with the assistance of Atomic Energy of Canada Ltd. as the supplier of zirconium pressure tubes for CANDU reactors.

In addition, the Company continued implementation of the following international projects in the sphere of FE NFC, seeking to retain and to expand its presence on the markets and to promote the development of the Company on the emerging markets*.

* For more details regarding the international cooperation projects see 2012 TVEL JSC Annual Report, Section 10 – “Place of TVEL FC in the World Market of FE NFC”.

Table 7. Performance in 2013 – International Cooperation in the Sphere of FE NFC

Project	Performance in 2013
Cooperation with AREVA	September 2013 – ceremonial delivery of the 3,000th fuel assembly to the Customer for PWR and BWR. During the operation of FA made by MSZ JSC under the contract with AREVA NP, no loss of containment has ever been registered
TVS-KVADRAT	Autumn 2013 – TVS-KVADRAT assemblies manufactured for loading in PWR scheduled for 2014
JV ALVEL a.s. – Center for Technology Services	A number of contracts entered into with the leading European operators of Western reactors, increasing the corporate portfolio which is a milestone for the Company's success in the future
Uranium Enrichment Center (Project TSOU)	End of September 2013 – the Joint-Venture Uranium Enrichment Center (Russia-Kazakhstan) completed the purchase of 25% + 1 share in the enrichment enterprise of JSC UEIP (Russia). The Joint-Venture will have access to 5 mln SWUs a year. Effective period of the project – 30 years. In November 2013 – first shipment of TSOU CJSC product under the Project TSOU
Project “ITER”	2013 – the Company continued to improve the production technologies with respect to Nb-Ti and Nb-Sn strands for international Project ITER. 20,000 tons of strands supplied in 2013
Project “Fabrication Plant in Ukraine”	2013 was the year of dynamic development of project for the establishment of nuclear fuel production facilities in Ukraine under Russian technologies. Project design was completed by the end of the year; state expert review yielded positive conclusion; preparatory operations on site commenced In 2013, the Fuel Company continued manufacture of substandard equipment for Stage 1 of Fabrication Plant in Ukraine that is scheduled for delivery in September 2014. The equipment is 90% ready November 2013 – TVEL JSC performs its financial obligations – in a timely and proper manner – USD 42 mln transferred to the JV for the additional issue of the shares. No money due from the Ukrainian shareholder in JV – State Concern Nuclear Fuel – was received as of December 31, 2013

TVEL FC Development Strategy

TVEL FC Development Strategy Updated in 2013.

GRI G3.1: 4.9

Growth on FE NFC Markets

By 2030 the Company intends to control 41%* of the global market of products and enrichment services and 20% of the nuclear fuel fabrication market by making top-quality traditional products and expanding to the emerging nuclear markets.

Main core projects of the FC that would help retain and expand the market share:

Project	Goals/Indicators
Creation of brand new types of fuel	Nuclear fuel (NF) for reactor plant (RU) BREST-OD-300, RU BN-800, REMIX
Creation of the pilot demonstration power complex (ODEK)	Creation of RU BREST-OD-300, nitride uranium-plutonium hybrid fuel fabrication modules and processing of spent nuclear fuel (SNF)
MOX fuel production	Organization of MOX fuel production for RU BN-800 at the Federal State Unitary Enterprise "Mining and Chemical Combine" (FGUP MCC)
TVS-KVADRAT	Enter global market of NC for PWR
FE NFC & BE NFC package offer	Long-term storage of spent nuclear fuel (SNF) followed by processing
Creation of fuel with brand new consumer properties	VVER-1000: TVSA-12, TVS-4A, TVS-4M; VVER-440: RK-3, RBMK: TVS-C
Fabrication Plant in Ukraine	Build a fabrication plant in Ukraine that will work under the Russian technology

Second Core Business Development

The Fuel Company focuses on innovations, seeing them as a tool that will strengthen its competitive position on the markets of machine-building, chemical industry, metallurgy and new energy sector".

Enhancement of Efficiency

TVEL FC continuously promotes technological and organizational improvements in its enterprises to reduce the production costs and to retain competitive edge against other market players".

Social and Ecological Acceptability

The Fuel Company is committed to promotion of sustainable social welfare in the towns of its presence, ensuring environmental safety, rational use of natural resources and nuclear materials, and removal of negative impact caused by the enterprises in prior years".

* Including 22% – supplies via JSC Technabexport.

** Chapter 4 Section "Intellectual Capital".

*** Chapter 4 Section "Manufactured Capital".

**** Chapter 4 Section "Environmental Impact (Natural Capital)" and Section "Social Capital".

