AKKUYU NGS AŞ

Akkuyu Nuclear Power Plant Project

AKKUYU NPP, JSC

Prague, Czech Republic
October, 2011

Akkuyu NPP Profile

Akkuyu is the first Rosatom's NPP project overseas to be implemented on BOO basis

Site: Akkuyu, Mersin province, Turkey

General parameters of the Akkuyu Project

- CAPEX: $ 20 bn.
- Legal basis: Intergovernmental Agreement, May 12, 2010
- Project design: NPP-2006 (VVER-1200)
- Number of units: 4
- Total capacity: 4 800 MW
- Construction period: 2012-2022
- PPA period: 15 years, fixed price terms

Project implementation environment

- The first NPP to be constructed in Turkey
- First BOO project totally implemented by Rosatom-affiliated companies
- Significant Russian and Turkish state support
- Future engagement of international investors
- Involvement of Turkish suppliers in NPP construction and operation in the future

BOO Projects in Turkish Republic

- Proven model of power generation project implementation
- Until recently, BOT (build-own-transfer) has been the prevailing model with relatively short-term contracts
- Under BOO (built-own-operate) model with long-term contracts, the company undertakes to design, build, operate and maintain a power plant, thus maximizing efficiency and life cycle
- In 2010, 45.4% of Turkish power was produced by EUAS, 30% - by privately owned generation under the BOT-BOO-TOR models, 19% - by independent power producers and 5.6% by industrial consumers, primarily for their own needs but with surpluses sold
- Akkuyu NPP Project is to be realized on BOO basis

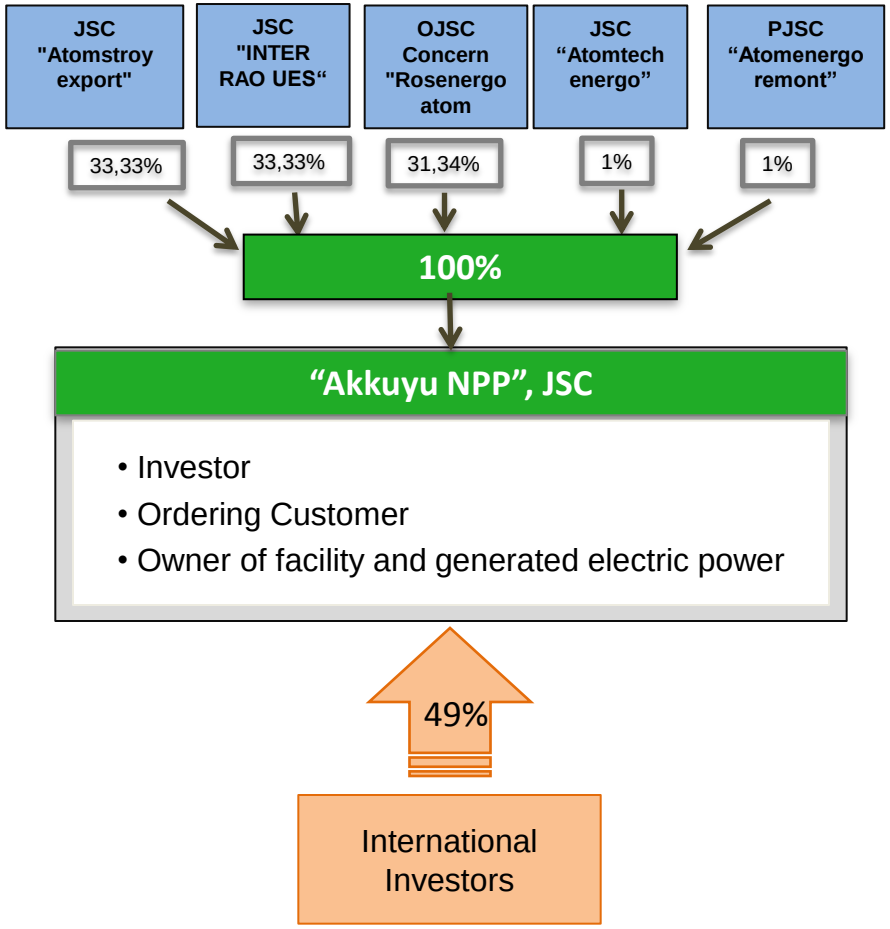
BOO Projects – Benefits for the Country

- ✓ Competitive bidding
- ✓ Broad range of possibilities to minimize project cost
- ✓ Risk sharing with private sector
- ✓ Access to advanced technology
- ✓ Flexible and prompt construction schedule

Akkuyu Project Development Chronology

Status:	
13.01.2010	Joint statement of Deputy Head of the Russian Government Igor Sechin and Minister of Energy and Natural Resources of Turkey Taner Yildiz on cooperation to construct NPP in Turkey; start of bilateral negotiations
12.05.2010	Signature of Agreement between the Government of the Russian Federation and the Government of the Republic of Turkey on cooperation in relation to the construction and operation of a nuclear power plant at the Akkuyu site in the Republic of Turkey (IGA)
21.07.2010	**Entry into force of the Law ratifying IGA in Turkey (Law No. 27648 dated 21.07.2010)**
15.11.2010	Project Company shareholders identified by the Russian Government
13.12.2010	**Entry into force of the Law ratifying IGA in Russia**
13.12.2010	**Project Company, Akkuyu Electricity Generation JSC (AKKUYU NGS ELEKTRIK URETIM ANONIM SIRKETI) was established in Turkey**
26.05.2011	Start of full scale site survey activities
2011	Completion of first phase of site surveys; start of preliminary engineering design; PPA negotiations; preparations for licensing and EIA

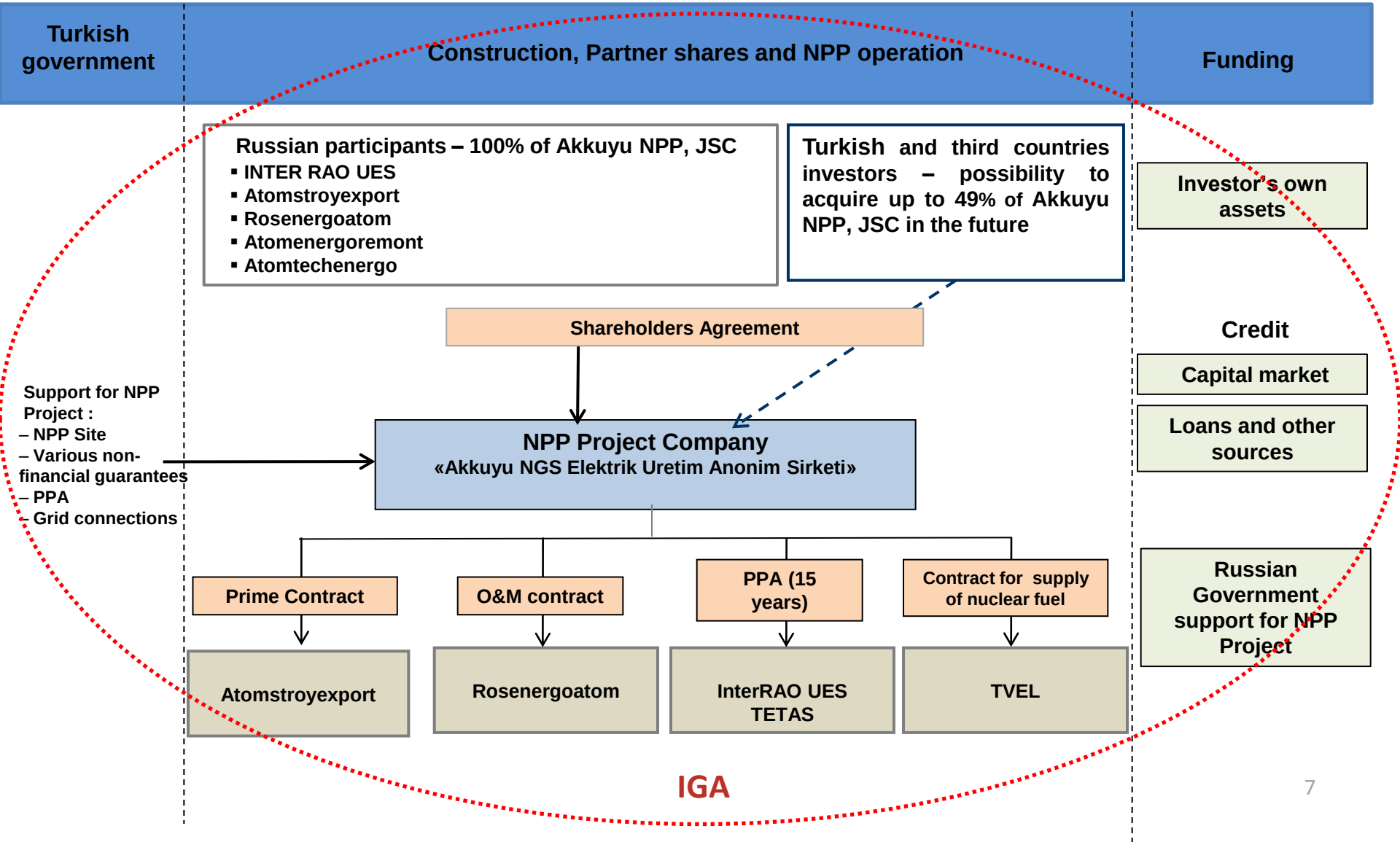
Akkuyu Nuclear Power Plant – Tailor-made JSC



COMMENTS

- “Akkuyu NPP “ is a tailor-made JSC incorporated in Turkey
- Rosatom-affiliated companies initially own 100% stake of the Akkuyu NPP, JSC and will retain the majority stake during the lifetime of the Project (51%-100%)
- International investors are welcome to join the project at any stage of its implementation and can own up to 49% stake

First NPP in Turkey – First BOO NPP Project in the World



Investment Opportunity

Key investment parameters

CAPEX	$ 20 bln.	Capacity	4,8 GW	Annual sales	~ $4 bln.
Construction period	10 years	Operating period	60 years	Payback period	18 years

PPA: contract period – 15 years for 50% of energy output,
fixed price 12,35 US cents per kWh

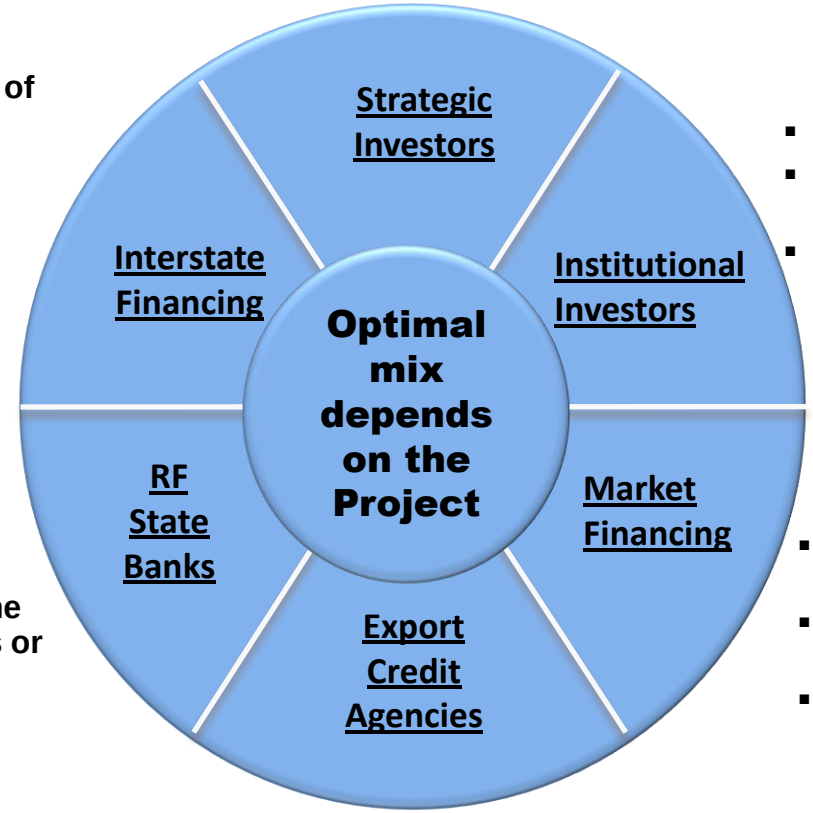
Project implementation environment

- Initial financing of the project is provided by the Russian party
- Russian State provides financial support by direct and indirect measures
- The project presumes electricity export to the European and Middle East countries
- Project financing approach presumes balancing equity and debt mechanisms. The latter one includes various debt sources and instruments; potential involvement of European export agencies (Coface, Hermes) is also considered

Sources Available for NPP Financing

- Equity financing
- Loan guarantees
- Competences in NPP construction and operation

- Project financing up to 85% of Russian supply value
- State guarantees
- Interest rates subsidies



- Equity financing
- Low-risk equity financing after NPP launch
- Dividend oriented portfolio investors

- Credits for a large share of the Project with state guarantees or suppliers guarantees

- 10-15% of the project debt financing
- Financial credit instruments, securities
- Project surety bonds, risk sharing mechanisms

- Large debt financing related to the delivery amount
- Commercial credit guarantees for equipment supply

Akkuyu NPP Cost Structure

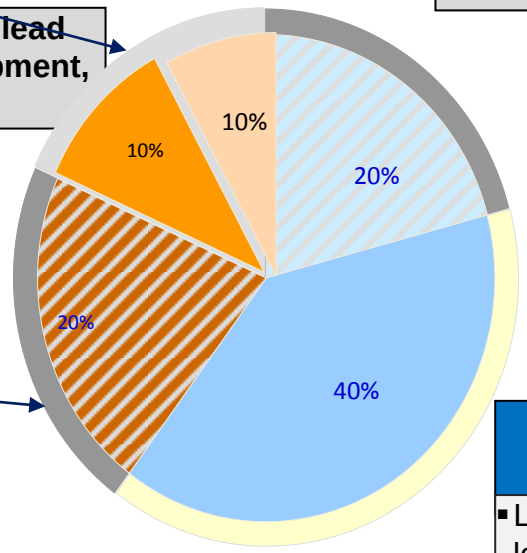
Preliminary estimates of AKKUYU NPP CAPEX

Potential for Global Sourcing including Czech Republic

- Equipment supply could be partially financed by International or European Export Agencies

Exclusively Russian Delivery

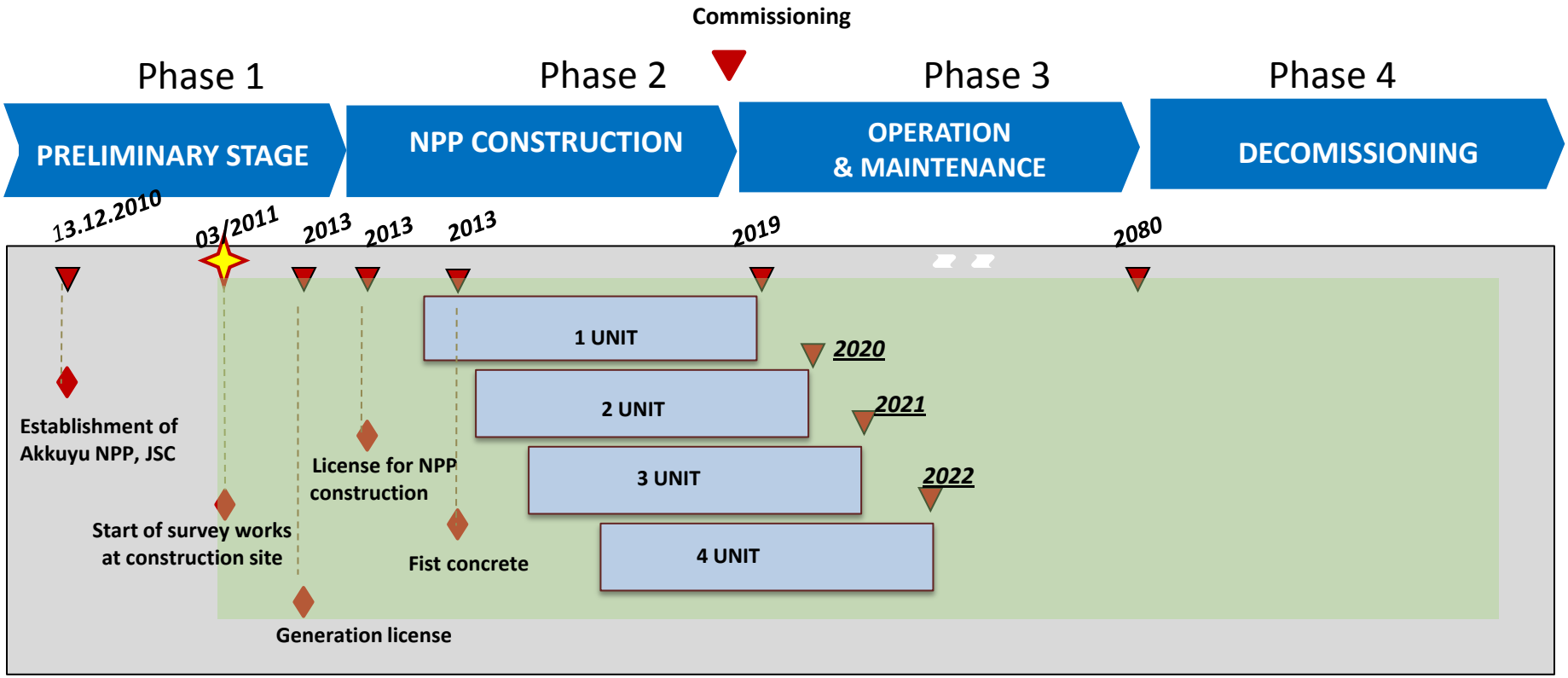
- Nuclear island equipment is a supply of unique Russian technology
- Partial Russian credit financing may be negotiated (up to 85%)



Potential for Partial Localization and/or Outsourcing

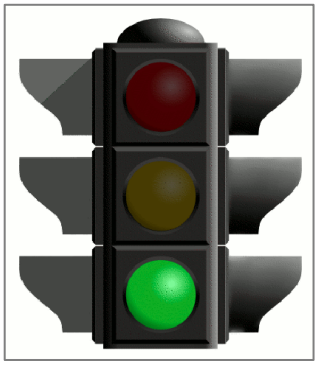
- Local execution may be supported by local financing

Major Phases and Milestones of the Project



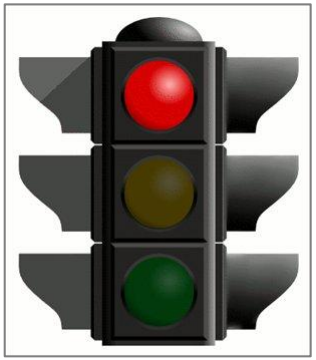
- In order to conclude PPA, the Project Company must obtain generation licence.
- After first unit commissioning in 2019 the project would ensure partial self-financing for the remaining construction works due to revenue from generated electricity.

Akkuyu Project Support



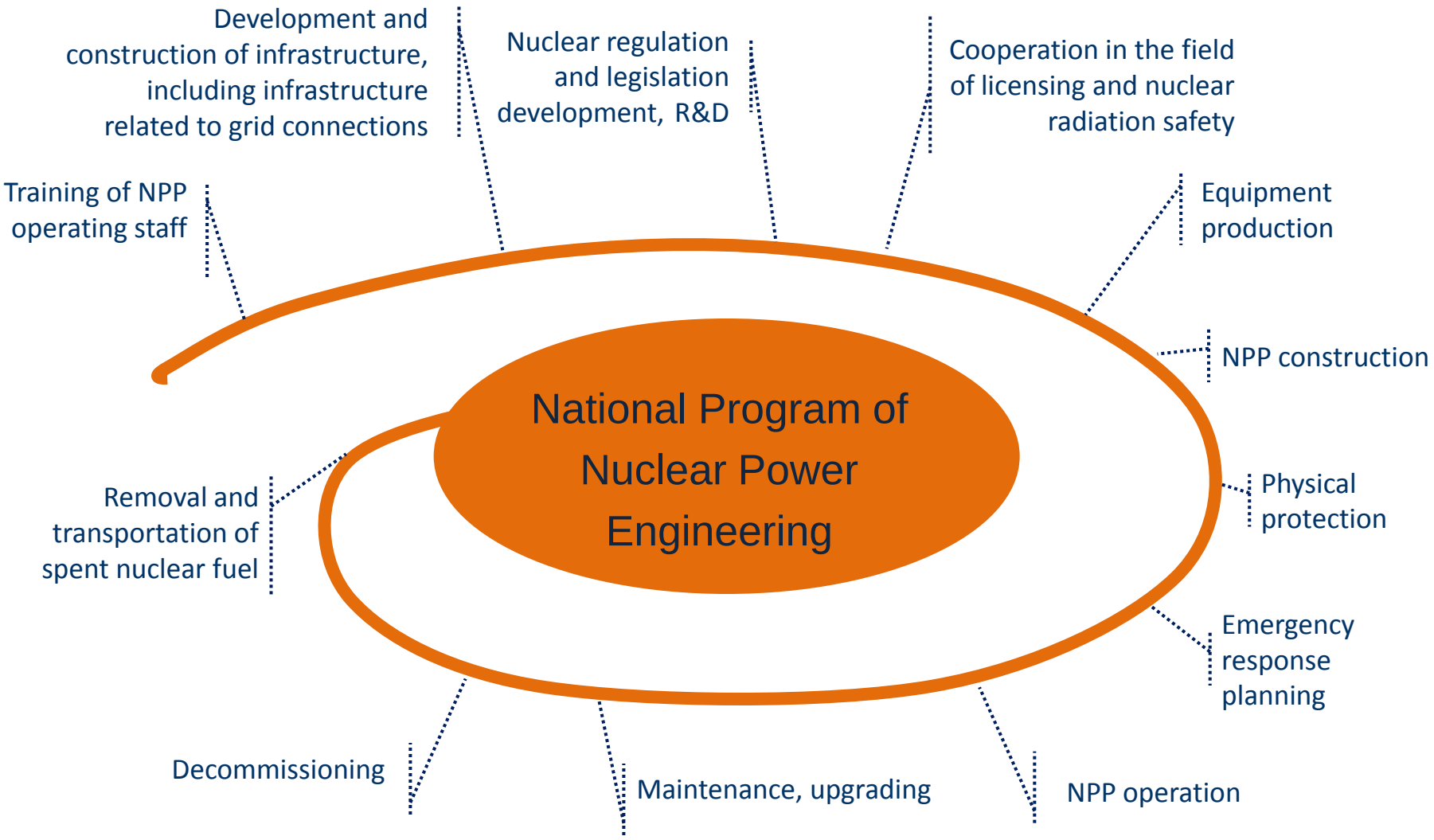
1	IGA ratified by the parliaments of Turkey and Russia
2	Strong support by Turkish PM, MENR, state agencies
3	Growing economy and demand for power
4	Recognition by Turkish public of global warming and threat of emissions
5	Lack of serious alternatives; secure fuel supply; fixed price PPA
6	Availability of Russian funds for initial phase
7	Interest of Turkish and international investors

Akkuyu Project challenges



1	1st NPP in Turkey – Lack of precedent & clear road map in licensing and permitting process.
2	Limited opposition, political and environmental
3	Fixed price PPA
4	High capital cost
5	First NPP executed under “BOO” scheme

Large-scale Approach to Cooperation



Infrastructure is a Joint Responsibility

Russian responsibility

- NPP Design, construction management/supervision
- Equipment
- Fuel
- NPP operation & maintenance
- Electricity trading
- Spent nuclear fuel and nuclear waste treatment

Joint responsibility

- Nuclear regulation and legislation development
- Public acceptance

- Training of skilled personnel

Turkish responsibility

- Site infrastructure
- Grid connections
- Physical protection
- Civil Construction and installation

Russian responsibility

Turkish responsibility

Turkish-Russian Cooperation on Akkuyu NPP Project

Russian side:

– Engineering Design

– Issue of design documentation

– Construction management/supervision

– Supply of equipment and materials

– Special installation works

– NPP commissioning

– NPP operation

– Personnel training

Turkish side:

▪Construction and installation works

▪Supply of equipment and materials

▪Participation in operation and maintenance

Definitive range of services will be determined on competitive basis after evaluation of experience and competence of Turkish partners

NPP Infrastructure Development

Akkuyu NPP is a large- scale project serving as a catalyst of regional infrastructure development

NPP Construction Needs:

Workers' township
Harbor and sea port infrastructure
Motorways
Power grids
Social services

Thousands of jobs will be created at the site, tens of thousands – off-site

Akkuyu NPP – Activities in 2011

- Consultations with Ministry of Energy, Ministry of Environment, Treasury, Ministry of Labor
- Consultations and regular meetings with TAEK on licensing road map
- Formed special work groups : - codes and standards
  - engineering surveys
  - reference NPP
  - preparation of PSAR
  - long lead equipment
- Work with major Turkish state agencies EMRA, EUAS, TETAS, TEIAS
- Signed contracts with JSC Atomstroyexport and Turkish companies with certificates of competence, selected on competitive basis
- Site survey work
- Performance of engineering design
- Preparation of licensing documentation
- Financial model development
- Establishing Information Center in Mersin
- Selected and began training of Turkish students

Training of Cadre of National Nuclear Specialists

1. In October 2011, 50 Turkish students started their education in the Russian National Research Nuclear University (MIFI)
2. These specialists will eventually constitute the key Akkuyu NPP operating personnel

1. MIFI is one of the three most prestigious RF Universities
2. Internationally recognized educational capabilities
3. Rich experience in training specialists proficient in nuclear facility operation
4. Practical training at RF nuclear power plants

Public Information Center

Mission:
To provide the public with transparent information about nuclear energy

Equipment and technologies
• Large panoramic screen
• Computer animation
• Stereo-sound
• Equipment models
• Interactive computer-based models

Methods
• Direct communications
• Simple language and comparisons
• Bright pictures
• Interactivity

Objectives:

- Informing community about nuclear power generation
- Transforming information centers into culture and education regional centers
- Involving students from Turkish State Universities in joint projects
- Providing information to the mass media
- Vocational guidance of high school graduates
- Russian language courses

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Thank you for attention!

Děkuji vám za pozornost!