



ROSATOM

Formation of ROSATOM Global Supply Chain

Presentation for Nuclear Industry Suppliers Forum – ATOMEX Europe

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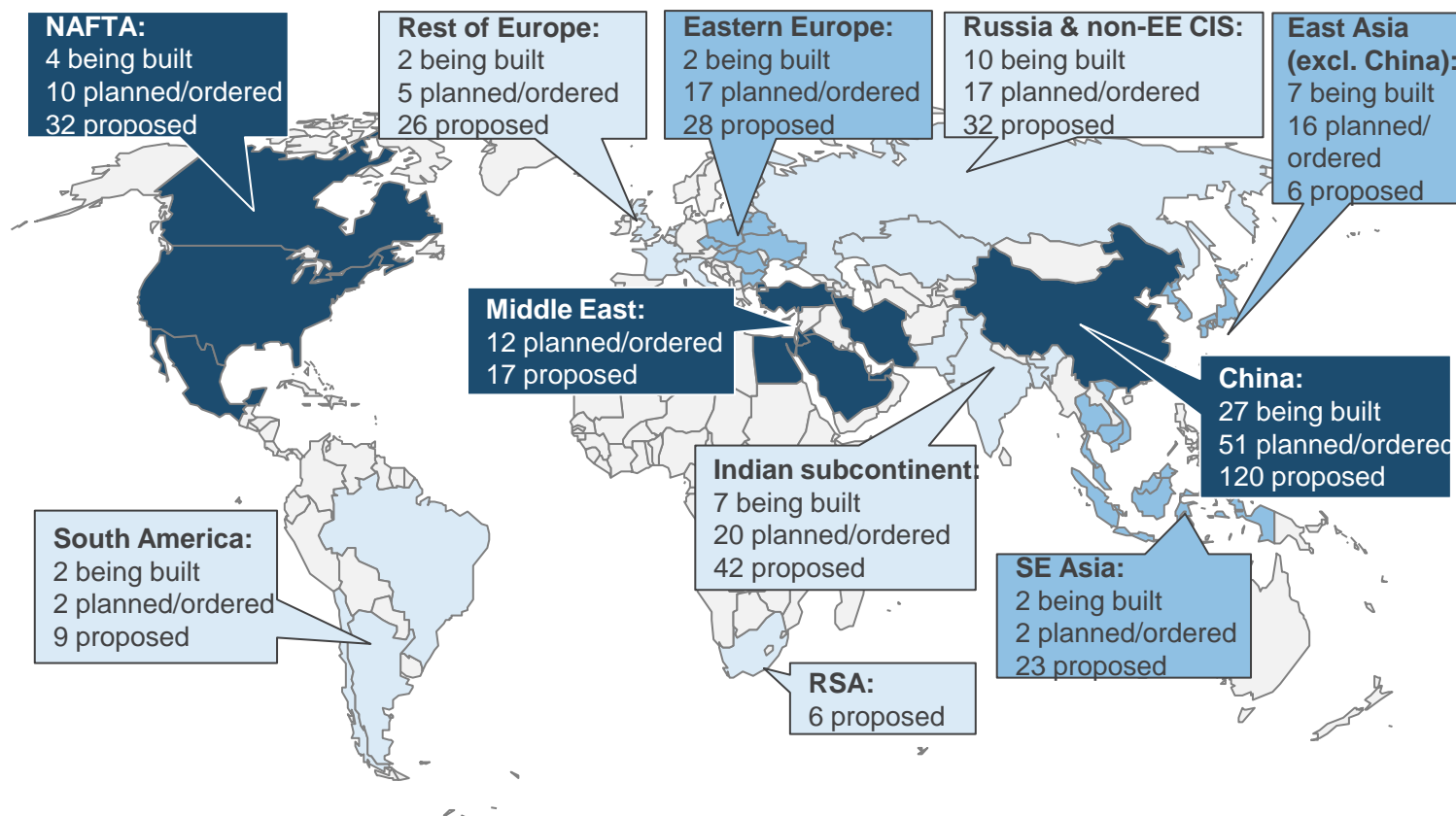
Prague
26th October 2011

Content

- **ROSATOM global business reach**
- Formation of Global Supply Chain - Czech localization as European pilot program
- How to become ROSATOM supplier – next steps

154 reactors have been ordered or planned worldwide (1/3 of them only in China) and additional 341 reactors have been proposed

Planned reactors worldwide



Statistics and forecasts

- 65 reactors with 66 GWe are being built
- 154 reactors with 173 GWe are ordered or planned (mostly expected in operation in 8-10 years)
- Additional 341 reactors with 390 GWe are proposed (expected operation in 15 years)
- 620 to 1350 GWe are predicted to be built until 2030

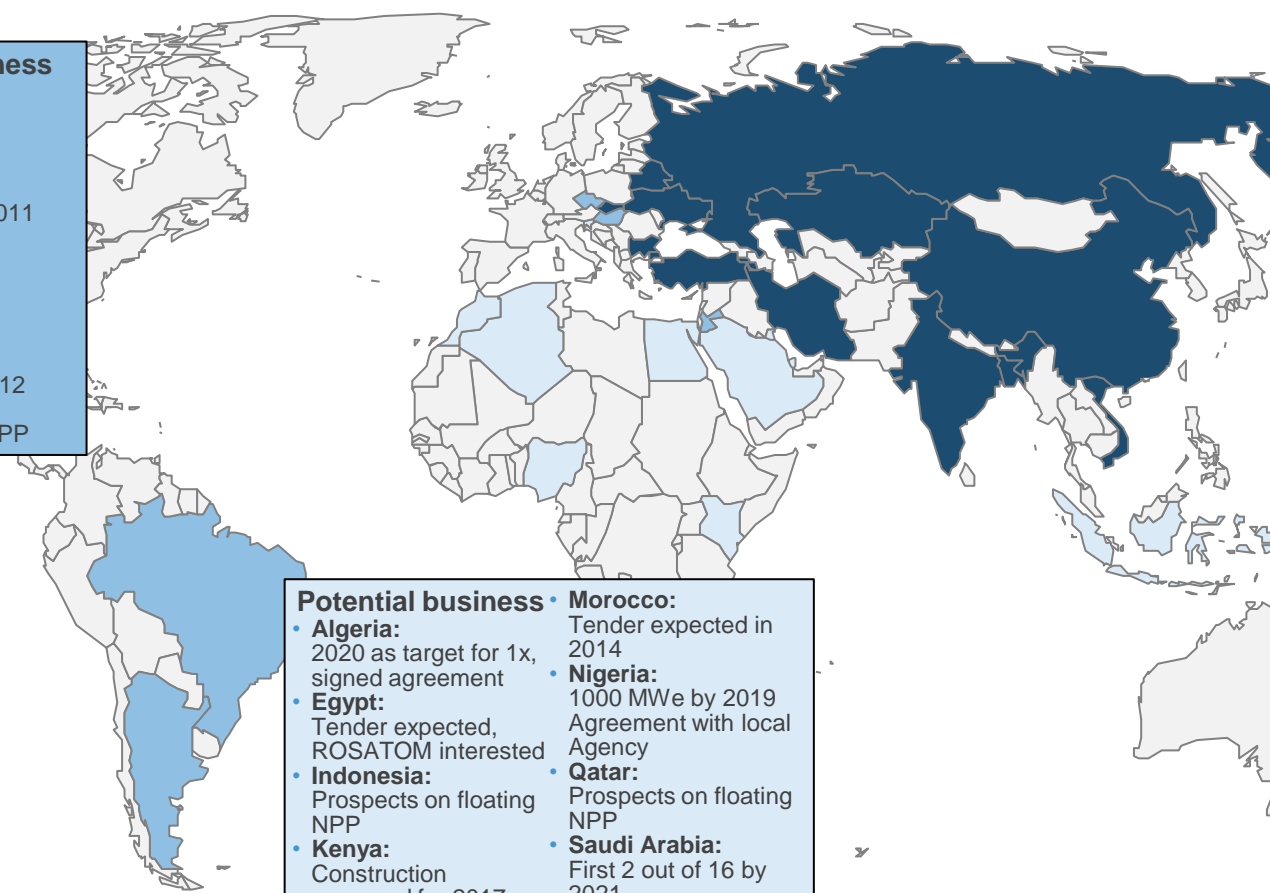
Note; Planned projects are mostly expected to be in operation in 8-10 years, proposed projects in 15 years. Figures include Taiwan.
 Source: World Nuclear Association, October 8, 2011, A.T. Kearney analysis

ROSATOM has currently running projects in 13 countries with the global pipeline of potential projects stretching its existing supply chain capacity

ROSATOM NPP building opportunities

Promising business

- **Argentina:**
Prospectively 2x
- **Brazil:**
Shortlisted for 2x 1000 MWe, to be decided in 2011
- **Czech Republic:**
Prospects on 2x 1200 MW, tender call in 2011
- **Hungary:**
Tender call for 2x 1000 MW in 2012
- **Jordan:**
Shortlisted for 1 NPP



Potential business

- **Algeria:**
2020 as target for 1x, signed agreement
- **Egypt:**
Tender expected, ROSATOM interested
- **Indonesia:**
Prospects on floating NPP
- **Kenya:**
Construction proposed for 2017
- **Kuwait:**
Government to decide on nuclear in 2012
- **Morocco:**
Tender expected in 2014
- **Nigeria:**
1000 MWe by 2019 Agreement with local Agency
- **Qatar:**
Prospects on floating NPP
- **Saudi Arabia:**
First 2 out of 16 by 2021
- **Slovenia:**
Parliament to vote on new NPP in 2011

Ongoing business

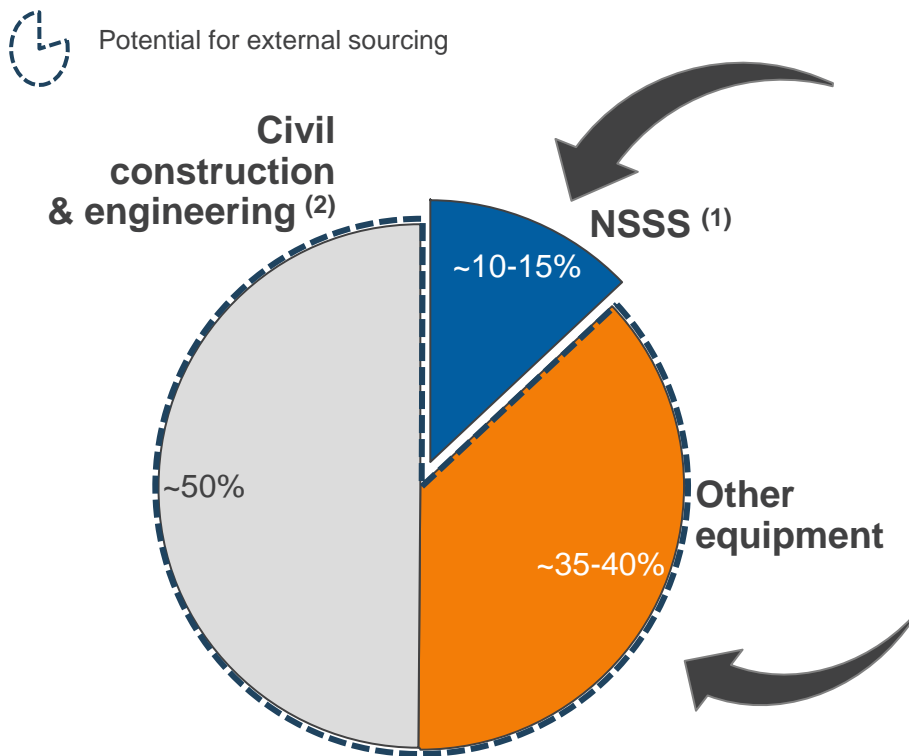
- **Armenia:**
Expected start of work 2012 on 1x 1000 MWe
- **Bangladesh:**
To build 2x 1000 MW by 2017-18 (final confirmation expected)
- **Belarus:**
To build 2x AES-2006 by 2017-18
- **Bulgaria:**
To build 2x AES-92, operational by 2016-17
- **India:**
building 2x 1000 MW, another 10 VVER planned, operational by 2017
- **Iran:**
To start construction, 2x in 2012-13
- **China:**
2x 1200 MW planned, and 2x proposed
- **Kazakhstan:**
JV for 2x 300 MW by 2020
- **Russian Federation:**
10 units under construction, Another 14 units operational by 2020
- **Slovakia:**
Building 2x, proposed, 1x 1200 MW
- **Turkey:**
To build 4x 1200 MW
- **Ukraine:**
2x by 2016-17, 11x replacements and 9x new reactors proposed
- **Vietnam:**
2014-2021 to build, 2x 1000 MW

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ROSATOM projects require formation of international supply chain and always bring numerous opportunities for global and local suppliers

Core production competencies split



Exclusive Russian supply



ROSATOM

Examples of realized supplies

• Valves, pumps and piping	(6%)
• Other equipment	(5%)
• Air cooling systems	(3%)
• Turbine and generator equipment	(6%)
• Electrical equipment	(9%)
• I&C	(6%)

ROSATOM is ready for and has extensive experience in formation of international supply chains for new NPP projects

Project	Country	Capacity	Cost
Akkuyu 1-4	Turkey	4 x 1200 MW	20 bil. USD
Belene 1-2	Bulgaria	2 x 1050 MW	6.3 bil. Euro

(1) Nuclear steam supply system
 (2) Including design, project management, erection and commissioning works, training , etc.
 Source: A.T. Kearney

Rich nuclear industry heritage, experience, capability and know how place Czech companies uniquely within the CEE region to become a backbone of ROSATOM European production and supply chain base

Core production competencies of the individual CEE countries⁽¹⁾

Key components Country	Reactor vessel	Main cooling pumps	Steam generators	Turbines	Generators	I&C assembly	Air-conditioning	Pipelines	Electrical devices & transformers	Construction & ground works
Czech Rep.	✓	?	✓	✓	✓	✓	✓	✓	✓	✓
Slovakia	—	—	—	—	—	✓	—	—	✓	✓
Poland	—	—	—	—	—	—	—	✓	✓	✓
Hungary	—	—	—	—	—	✓	—	—	—	✓
Croatia	—	—	—	—	—	—	—	—	—	✓
Serbia	—	—	—	—	—	—	—	—	✓	—
Slovenia	—	—	—	—	—	—	—	—	—	✓
Turkey	—	—	—	—	—	—	—	—	—	✓
Bulgaria	—	—	—	—	—	✓	✓	✓	✓	✓

Apart from Temelín there are many opportunities to speed up Czech suppliers integration into ROSATOM international supply chain

ROSATOM selected opportunities¹⁾



Country	Ordered	Planned	Proposed
Belarus	2		2
Bulgaria	2		
Czech Republic		2	1
Hungary			2
Russian Federation	14		30
Slovakia			1
Slovenia			1
Turkey	4		4
Ukraine	2		20

Scope of opportunities for Czech companies

- Result of Temelín tender is not a pre-condition for Czech companies to become part of ROSATOM international supply chain
- Project pipeline offers many opportunities for Czech companies to integrate into ROSATOM supply chain more or less immediately

The Czech localization program will bring benefits to all involved parties

Goals and benefits of the Czech localization program

Czech localization program drivers

- **ROSATOM global nuclear projects pipeline requires formation and diversification of its supply chain**
- **Czech industry successful track record, proven quality and competencies in nuclear projects**
- **Support to winning campaign in the tender for construction of 2 nuclear power plant blocks in Temelín**



Benefits for the Czech companies

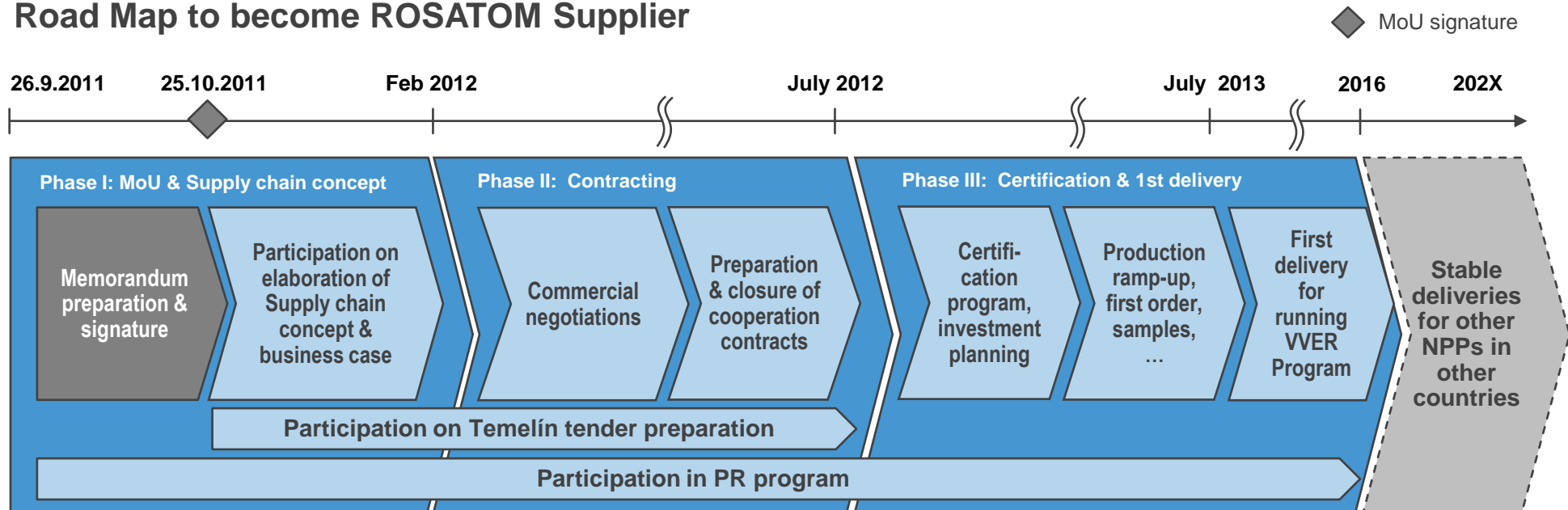
- **New co-operation contracts independent to the result of Temelín tender**
- **Opportunity to expand globally by participating in ROSATOM NPP construction projects world-wide**
- **Access to global cutting-edge nuclear know-how**

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Comprehensive program has been elaborated to develop European supply chain base which will in parallel support NPP construction projects in other countries globally

Road Map to become ROSATOM Supplier



Main Activities

- Local suppliers background overview
- Memorandum signature
- Supply chain concept elaboration
- Costs & benefit analysis
- Evaluation of potential risks
- Technical audits
- Preliminary negotiations
- Assessment of companies technology & certifications
- Assessment of investment needs
- Preparation of contracts
- Negotiations and Contract signature
- Certification program of ROSATOM's suppliers
- Sample production
- Technology investments
- Production ramp-up
- Preparation of first order, samples delivery
- First delivery

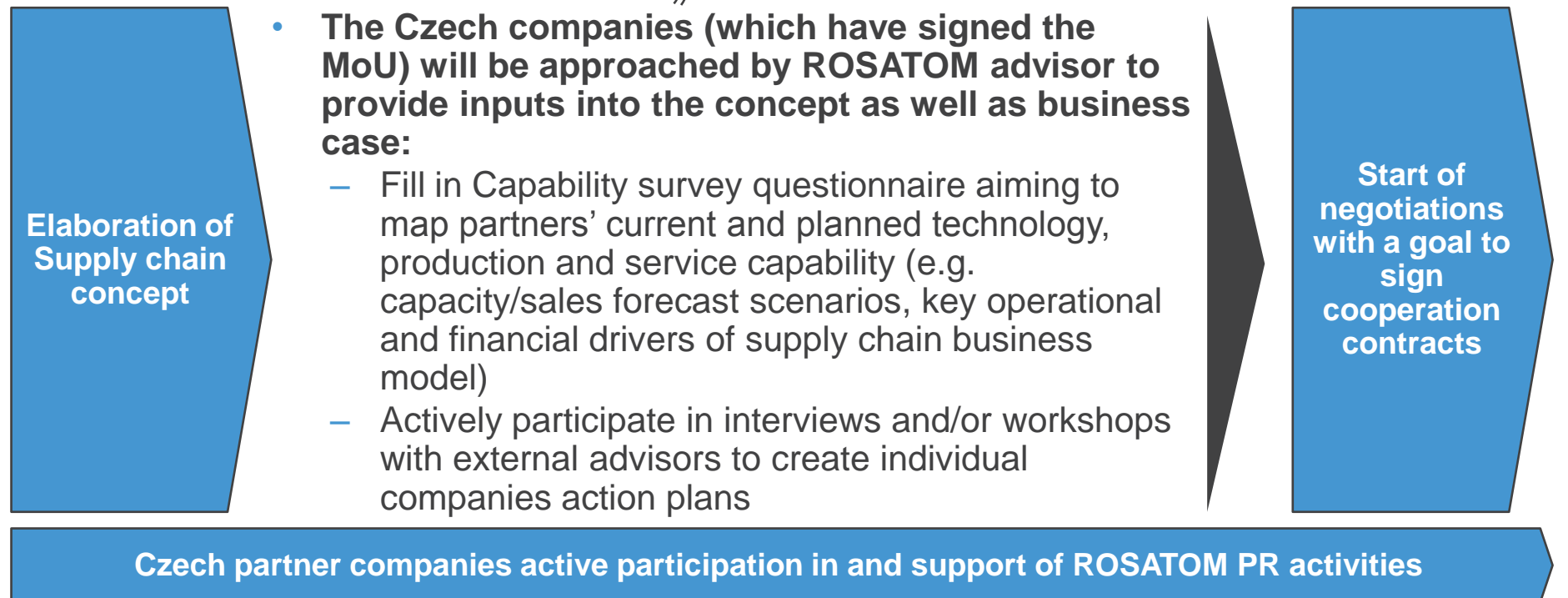
In order to meet the milestones of the comprehensive program, a close cooperation of ROSATOM, European suppliers and external advisors will be required

Supply chain concept elaboration will be aimed at mapping the technology/production capabilities and will require close involvement and active participation of ROSATOM and European companies

Immediate next steps/tasks for European partner companies

25.10.2011

Feb 2012



The main goal of ROSATOM is to close contracts with the key suppliers as soon as possible to integrate them into its international supply chain

**WE WOULD LIKE TO INVITE YOU TO PARTICIPATE IN ROSATOM
GLOBAL NUCLEAR BUSINESS SUCCESS!**

