

FEDERAL AGENCY ON ATOMIC ENERGY

*Sergey Kirienko's presentation at the Annual
WNA Symposium
7 September 2006, London*

RUSSIA: INFRASTRUCTURAL CHALLENGE

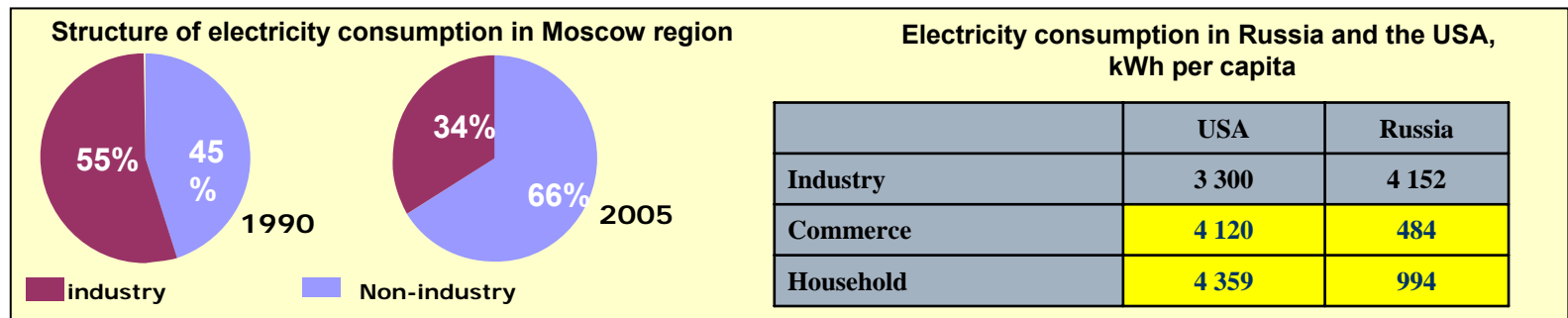
- Electricity generation growth - at least by optimistic scenario of Russian Energy Strategy:

2005: **954 TWh - de facto**
 935 TWh - planned

Eight months of 2006: – planned 2%, but 5,5% de facto

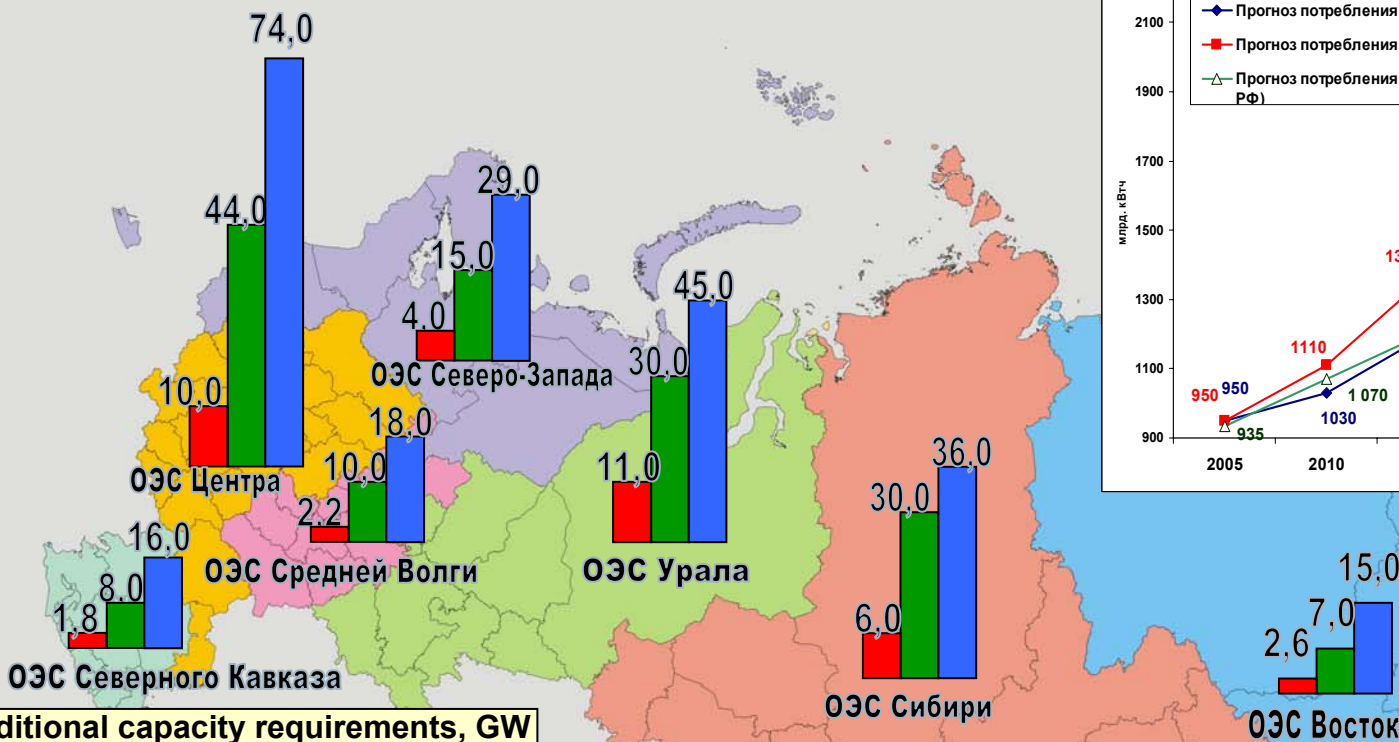
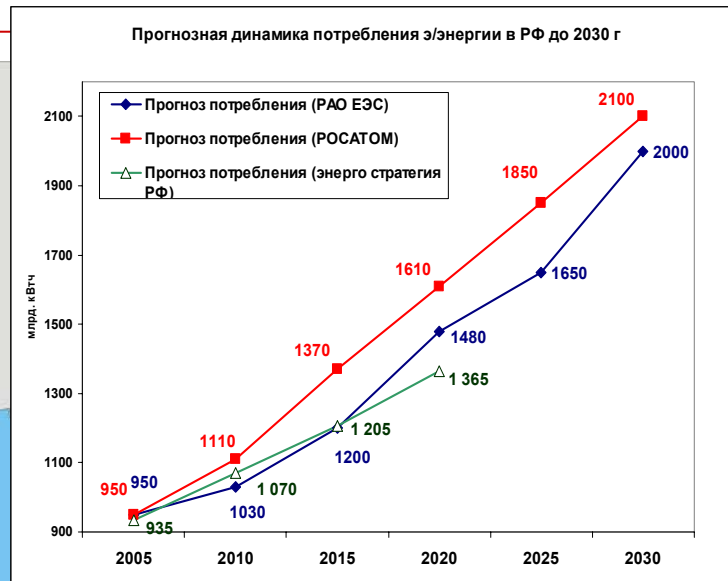
- Reasons behind:

- Factor of growth of non-industrial consumption



- World market demand for raw materials and resulting growth of Russian heavy industry, namely oil and gas sector, metallurgy

ASSESSMENT OF THE SITUATION



Additional capacity requirements, GW

- 36 Deficit by 2010
- 131 Deficit by 2020
- 227 Deficit by 2030

Replacement by 2030, GW

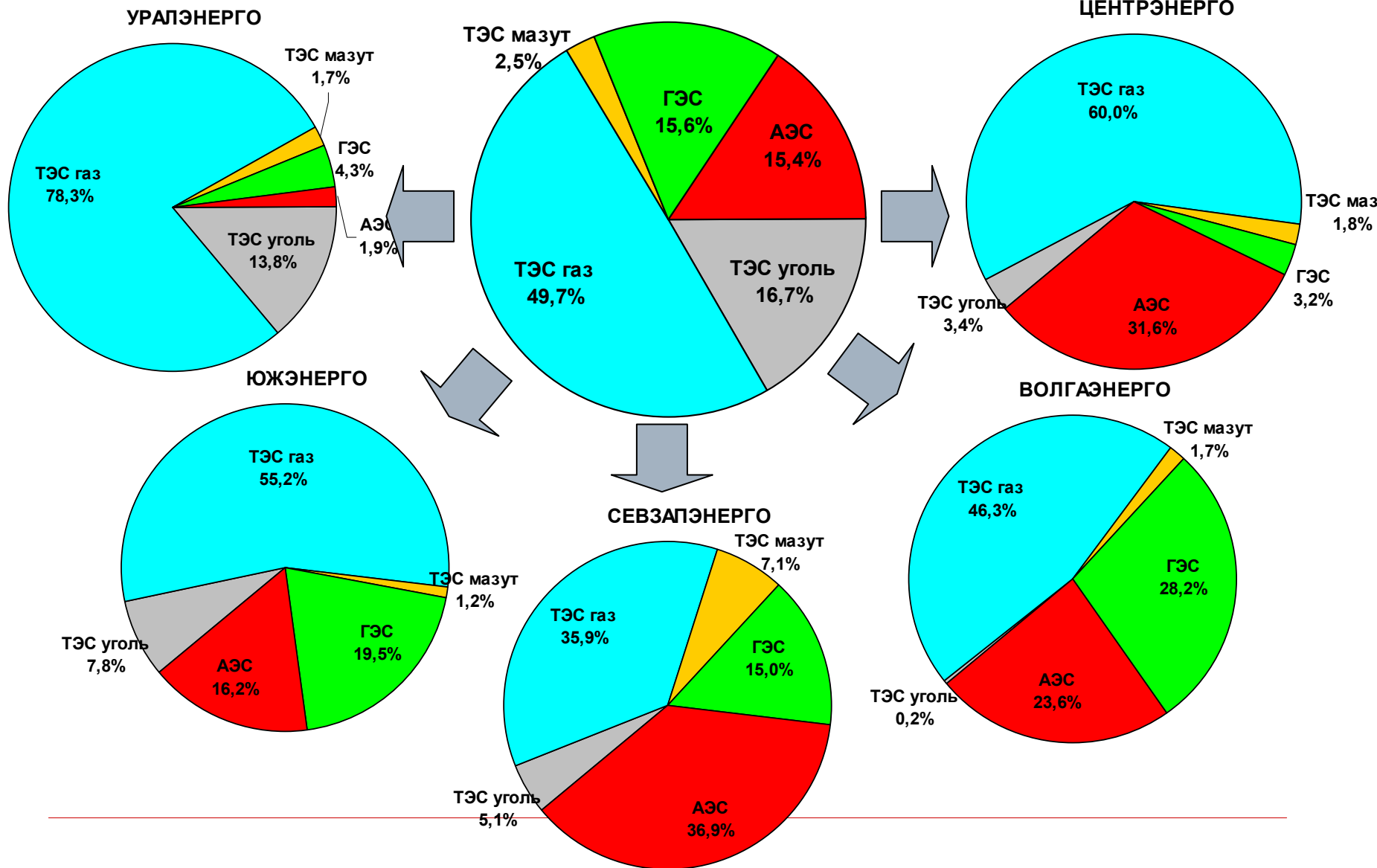
- 45 Economic
- 61 technical

Total: above 300 GW

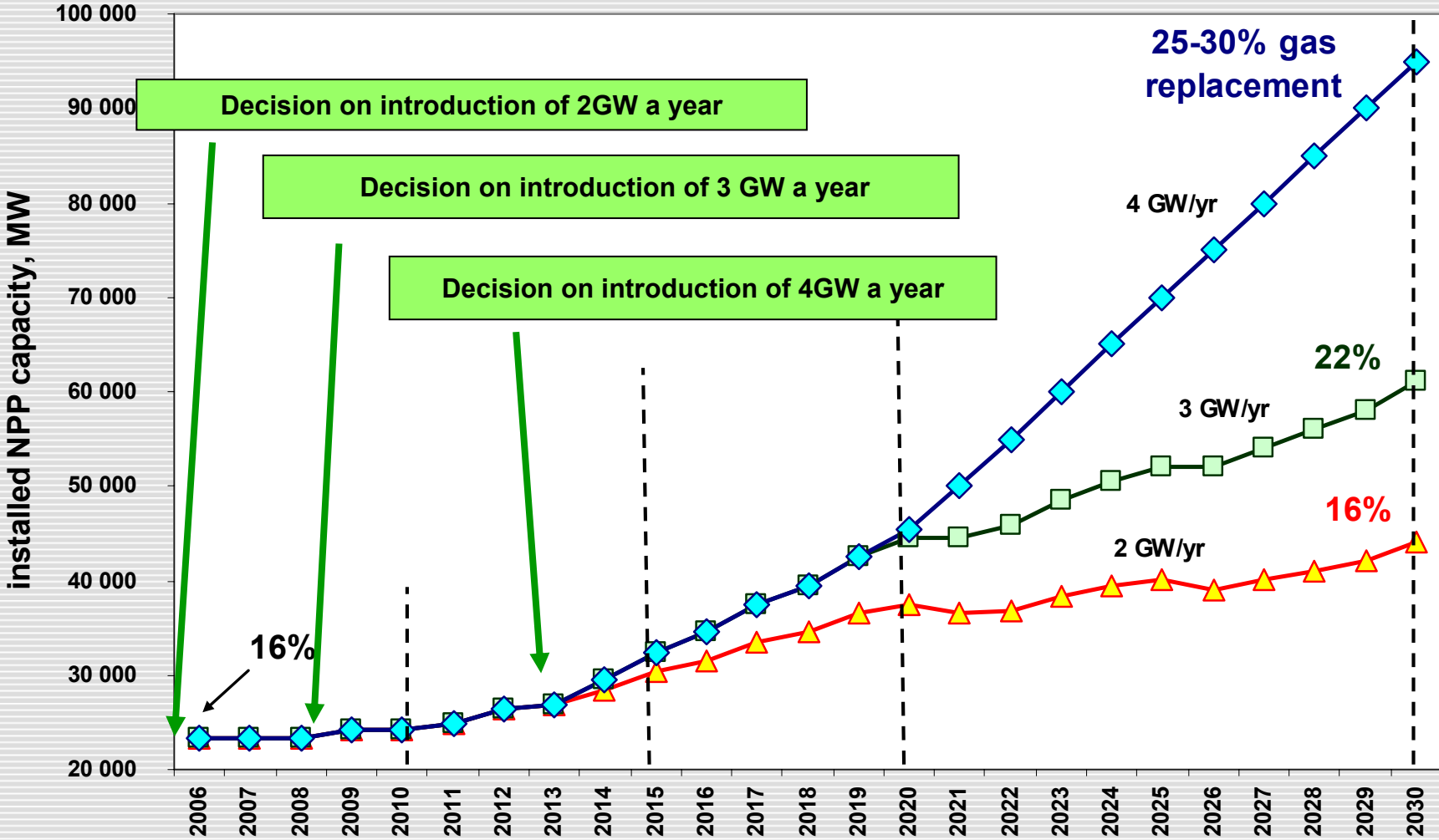
Introduction of new capacity has to be guided by availability of fuel resources, ecological concerns and lead to optimized energy policy of Russia.

ELECTRICITY: LIMITS OF THE FUEL MIX

ЕЭС России



EXPECTED GROWTH OF NPPs CAPACITY



KEY DEVELOPMENTS

Program of nuclear power development: priority measures

Division of the Russian nuclear industry into civilian and defense sectors

Law amendments introducing the ownership rights of legal entities to civil nuclear materials and facilities

Vertically integrated company in civilian sector

Budget support to start up NPPs construction program at 2 GW a year

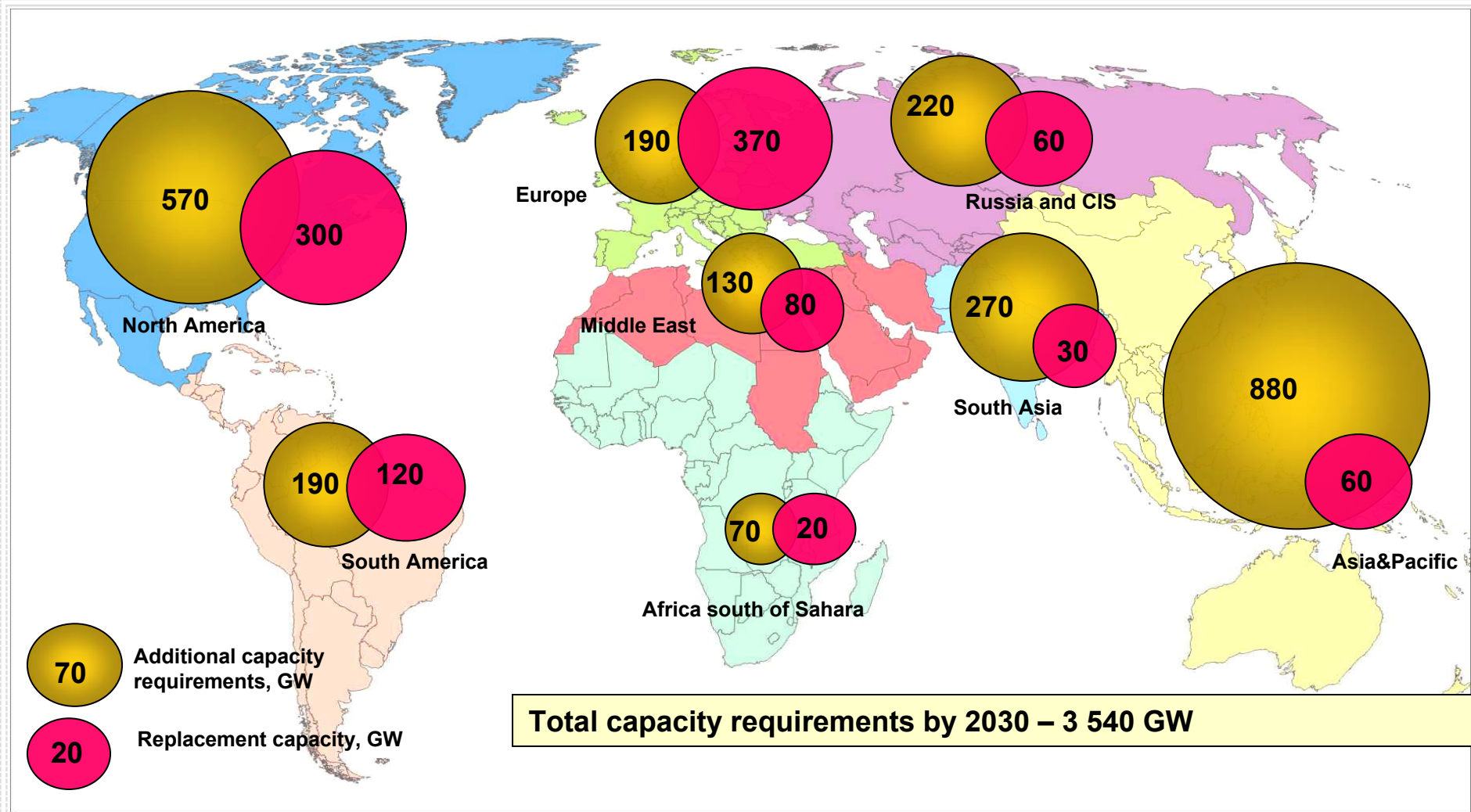
Nuclear safety program: insurance for new build and budgetary support of delayed issues

Integrated mining company, including respective assets of TENEX and TVEL

International Nuclear Fuel Cycle Center

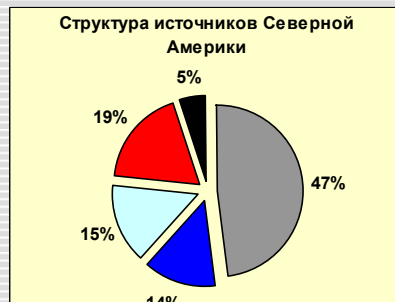
- **Serial construction of NPP-2006 (standardized evolutionary VVER 1150-1200)**
 - **Further development of fast breeder reactors (BN-800 by 2012)**
 - **Small and medium reactors (KLT-40 by 2009 and VBR-300)**
 - **High Temperature Gas Cooled reactor**
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WORLD PICTURE: ELECTRICITY DEMAND

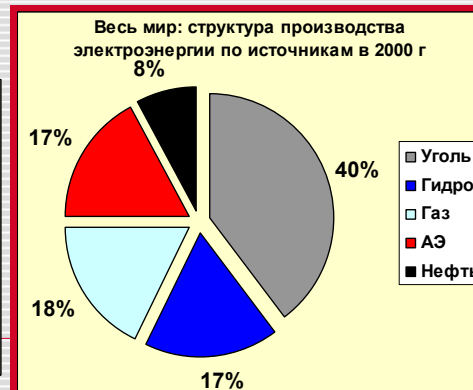
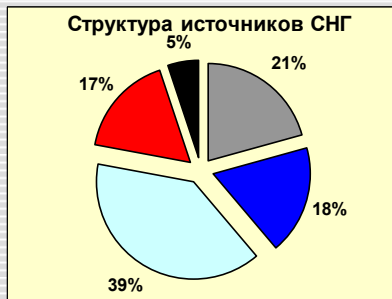


ELECTRICITY GENERATION STRUCTURE

Coal generation



Gas generation



- Уголь
- Гидро
- Газ
- АЭ
- Нефть

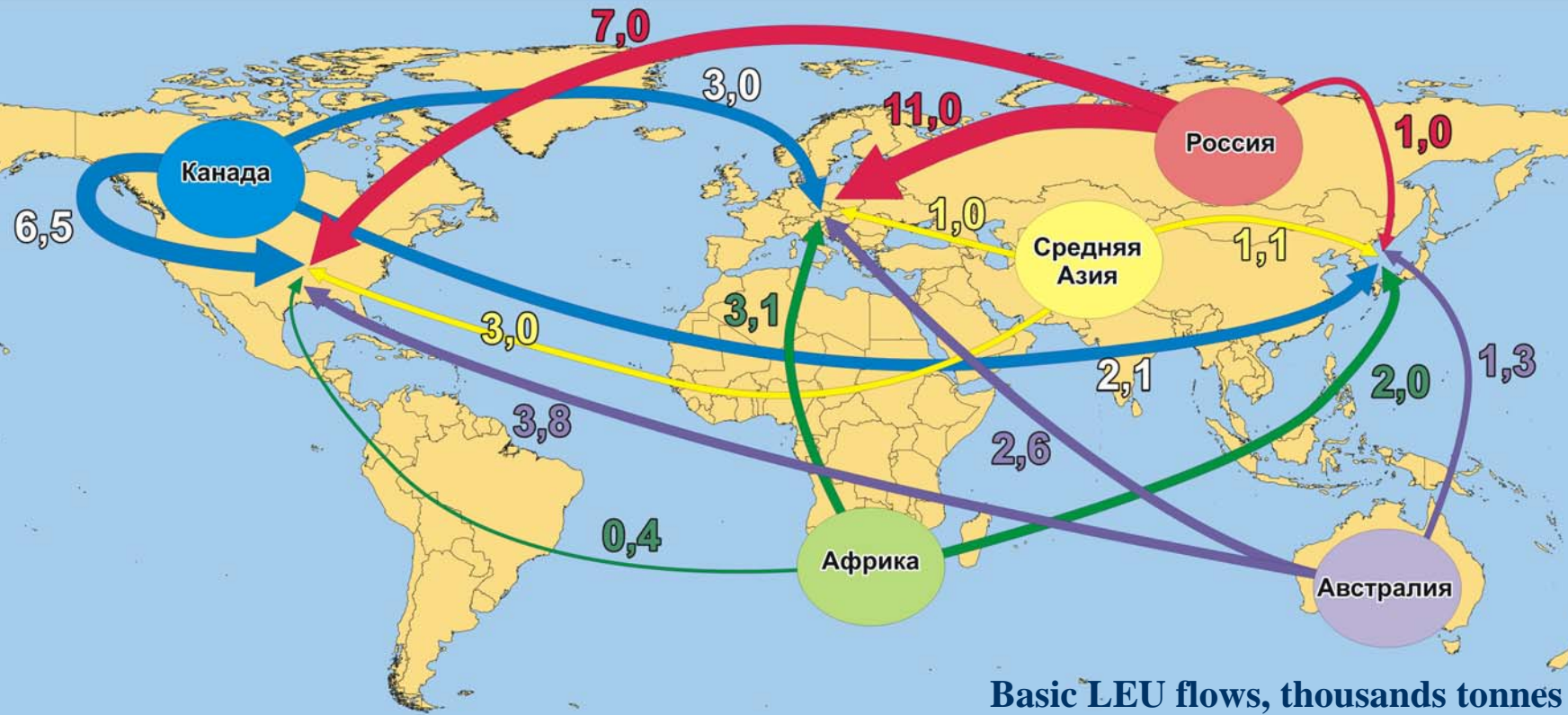
The current structure of fuel mix can not be sustained till 2030:

Increased oil consumption will require additional 60-100 million barrels a day from new fields (current production rate is 74 mbd).

To keep the existing share of coal generation will require over 2,3 billion tonnes extra (the current production level is 3,8 billion tonnes) – hard challenge to infrastructure and unacceptable environmental burden if realized by contemporary technologies

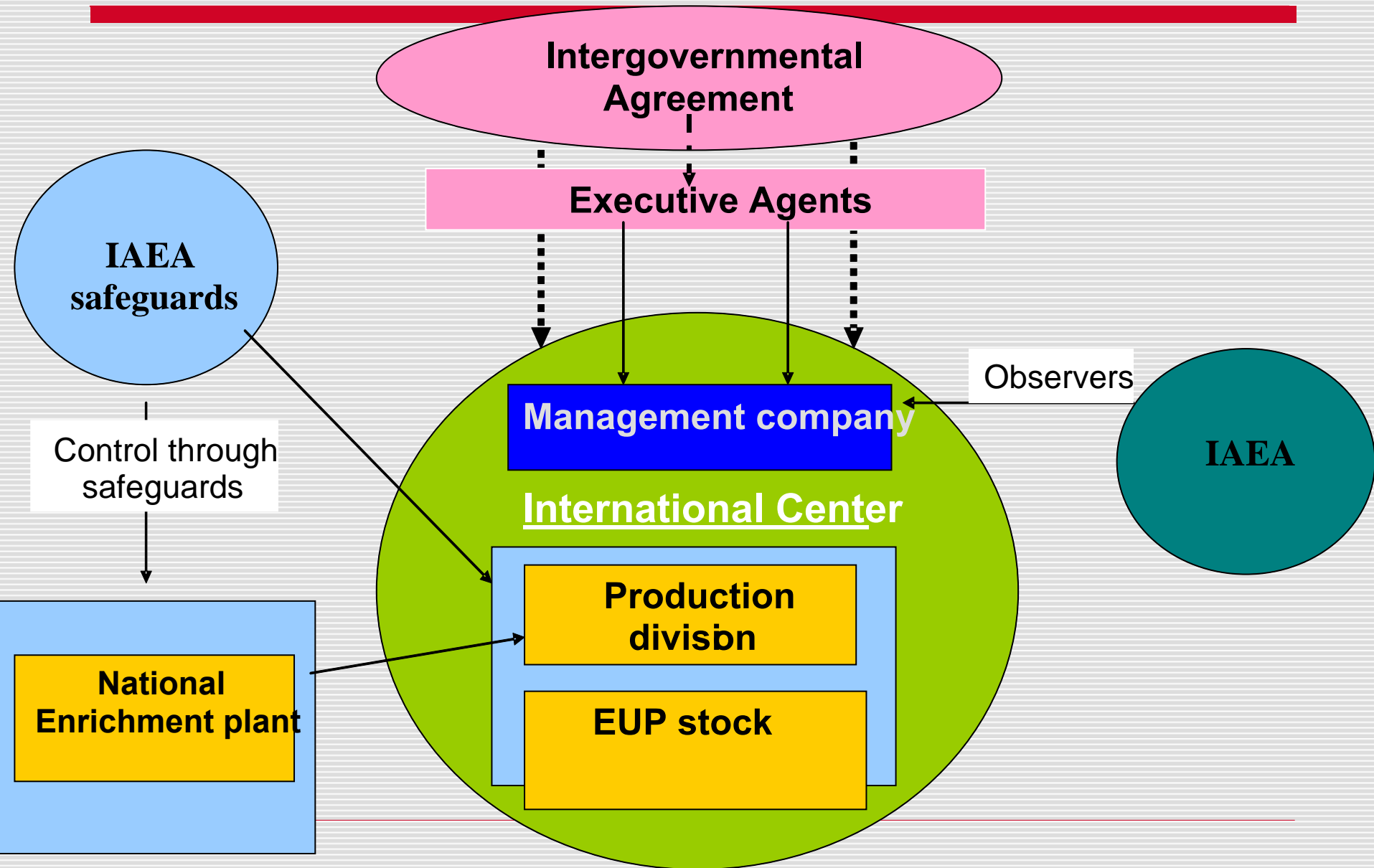
Nuclear power has no alternative

WORLD URANIUM MARKET



RUSSIA IS FOR A FAIR PLAY IN GLOBALIZED MARKET

INTERNATIONAL CENTER: ORGANIZATION



INTERNATIONAL CENTER: PRODUCTION

