
AREVA

Challenging or easy ?

Natural Uranium Availability to Fuel a Nuclear Renaissance

Tim Gitzel

Executive Vice-president

Business Unit Mines

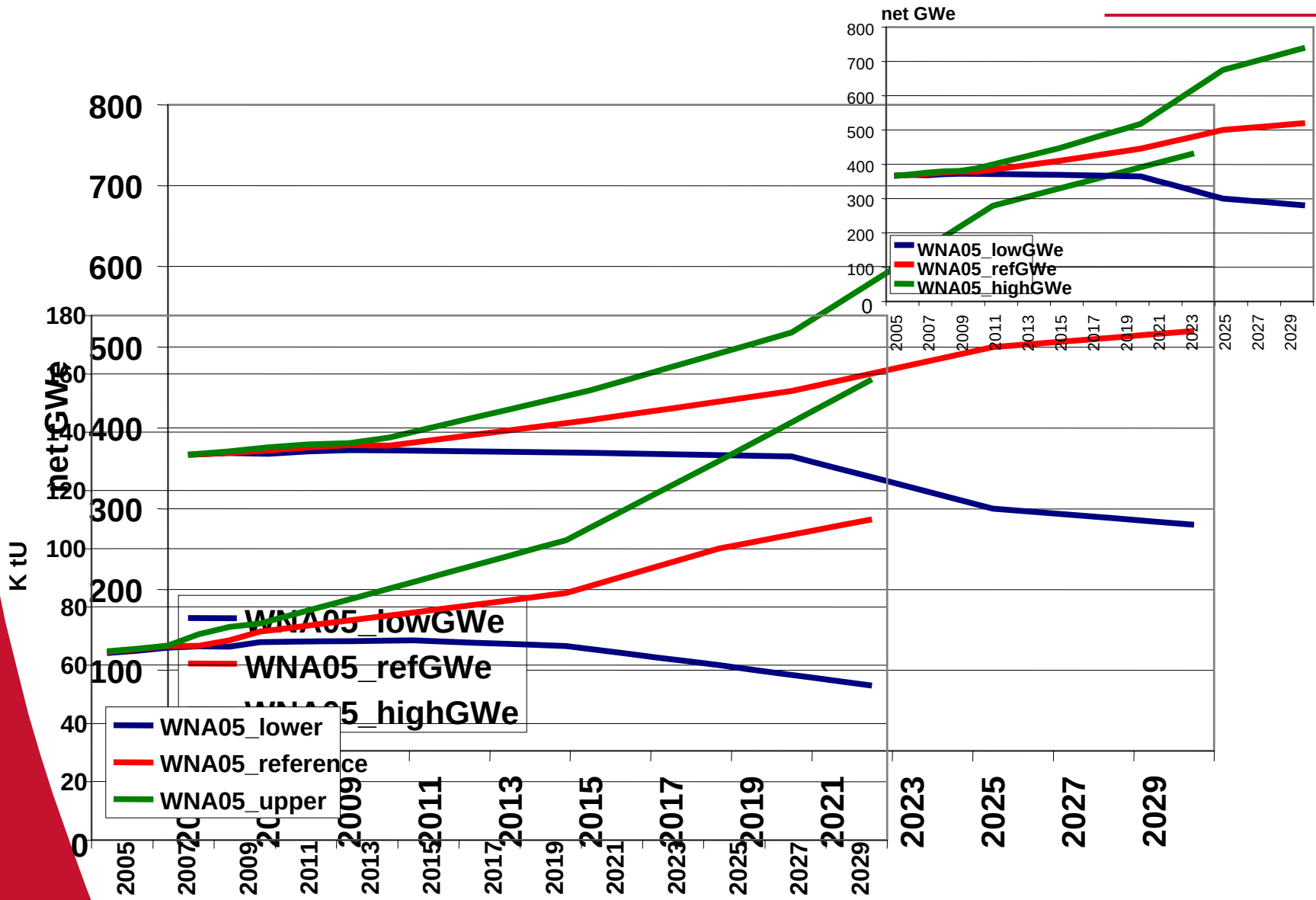
AREVA

World Nuclear Association Symposium

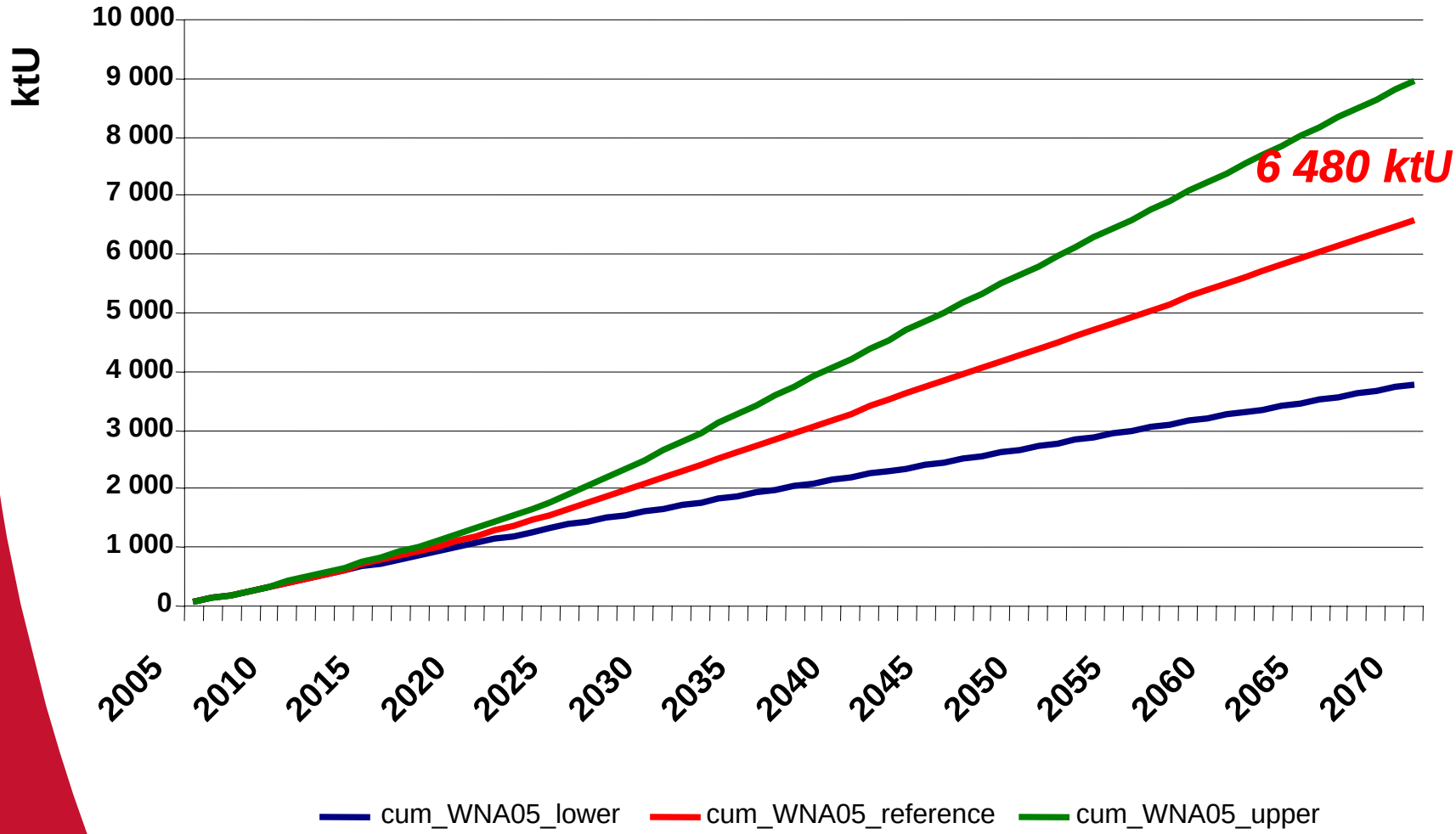
London, September 9, 2005

ENOUGH URANIUM UNDER OUR FEET to fuel the Nuclear Renaissance

Nuclear generating capacity to 2070
…Corresponding Uranium requirements to 2070



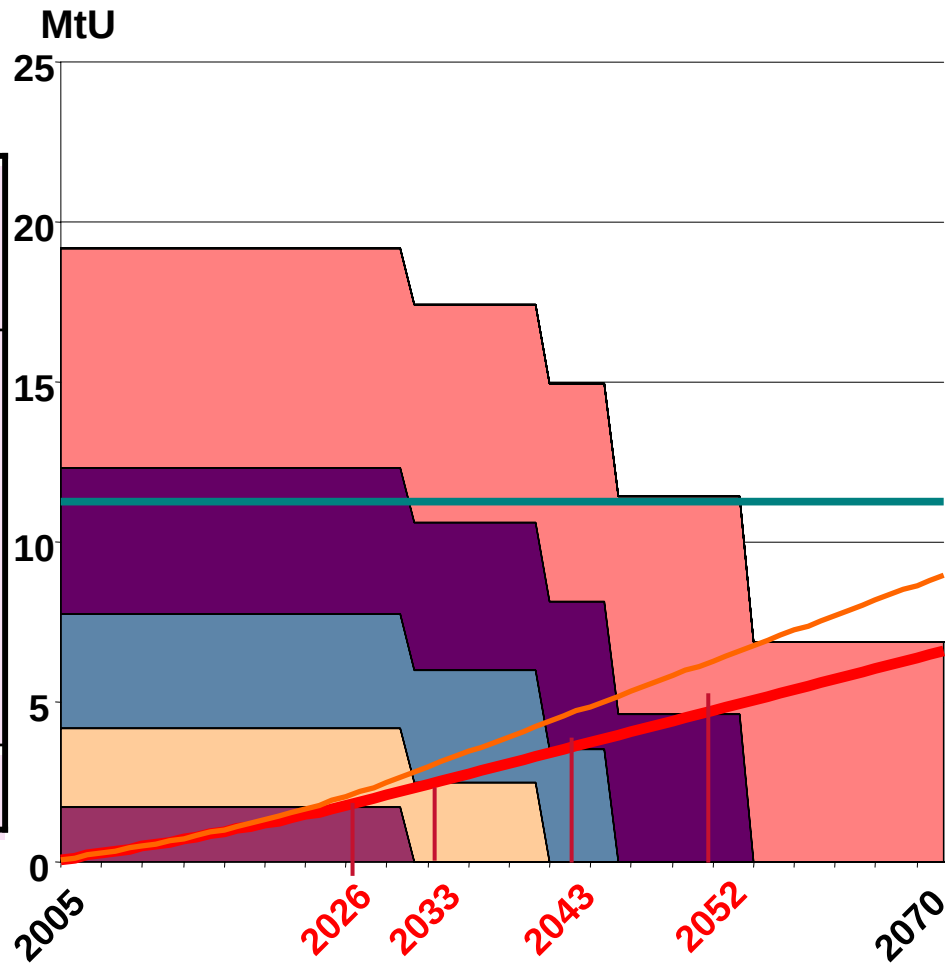
WNA Reference case cumulated world (gross) uranium requirements



How existing uranium availability satisfies Uranium requirements

14.7 MtU

MtU	Conventional Resources				Unconventional Resources.
US$/kg U $/lbU308	RAR	Inferred or EAR-1	Hypothe-tical	Specula-tives	
< 40 <15	1,7	0,8	1,5	4,4	Around 15 to 25 Costs unknown
40 – 80 15 - 30	0,8	0,3			
80 – 130 30-50	0,7	0,3	0,8	3.1	
> 130 > 50	?	?			
	3,2	1.4	2.3	7.5	
TOTAL	4,6	14.4	9,8		15 – 25



Source: Red Book OECD-NEA - IAEA; issue 2003

Uranium under our feet ….
BUT NOT AT OUR FEET

Nuclear Renaissance: Turning resources into production

Let's make it happen !

- **Today's uranium mine production: 40ktU in 2004**
- **Needed increase for mine production, reference scenario**
  - **Next decade: +50-60%**
  - **By 2030: +170%**
- **But production increase potential from existing mines is limited**
- **Starting new mines as soon as possible is necessary**
- **For this there are three essential prerequisites:**
  - **Time**
  - **Expertise**
  - **Money**

Time: From exploration to production - 20 Years

- **From undiscovered resources to known resources**

  Successful Exploration: "best case scenario"

- **From known resources to reserves**

  feasibility studies: drilling, sampling, testing

  + ad hoc licensing

- **From reserves to production: fully feasible projects**

  Construction and Production Licensing

  + Construction of infrastructures and facilities

Minimum of 20 years incompressible time lag between market signal and supply response

Expertise

- **The easiest, most accessible ores have likely been already found**
- **Experienced geologists, mining engineer and metallurgists in the field of uranium exploration and production are very few**
- **Uranium is no common matter, special additional expertise on radioprotection and environmental responsibility is necessary**

Money

- **Financing is involved at each step**
  - **Investment in exploration to identify new resources**
  - **Financing ore-bodies development to transform resources into mineable reserves**
  - **Investment in new mining capacities**
- **Market forces seem at work to allow financial nurturing of the uranium renaissance**
- **But the time factor calls for sound money**

AREVA's past and present long term commitment

- **TIME**

  A long, proven and sustainable experience in Uranium mining

  - **50 years of activity in uranium, started in France**
  - **40 years of exploration and extraction world wide**

- **EXPERTISE**

  - **Experience of operations in all conditions**
  - **Long term experience in conventional and innovative techniques**
  - **Mastering of all mining techniques: open-pit, underground and In-Situ Leaching**

- **MONEY**

  - **Close to 5% of the BU Mines turn-over allocated to exploration**
  - **Sound and extended financial capabilities**