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Investing in Nuclear Fuel Cycle Facilities to Invigorate the Nuclear Renaissance

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AREVA 2007: when vision becomes reality

- **AREVA's creation in 2001 was motivated by a strong belief in the nuclear renaissance**
- **Nuclear renaissance is now strongly engaged:**
  - **New build programs announced in many countries**
  - **Renewed interest from the financial community**
  - **Dash for Uranium**
- **As the leading integrated player, AREVA invests its resources to strengthen the dawning nuclear renaissance**
- **How? Through a very ambitious investment policy**
  - **To serve its customer needs**
  - **To ease decisions towards new builds through secured LT fuel supplies**

Massive Ongoing Front-End Investments: > 6 billion €

- **Securing future Uranium Sources: > 2.3 billion €**
  - *Development of Katco's mines in Kazakhstan*
  - *Acquisition of Uramin (African assets)*
  - *Large share in Cigar Lake*
- **Replacing, and potentially expanding, Conversion Plants: 610 million €**
  - *Comurhex 2 project*
- **New Enrichment plant in France (GBII): 3 billion €**
  - *Plans for a new AREVA Centrifuge Enrichment project in the USA*
- **Modernization of Fuel Fabrication Plants: > 100 million €**

Fuel Cycle Investment Preparation Policy: not a short-lived fashion, a continuous process

- **Uranium**
  - AREVA involvement in Cigar Lake (Canada) started in 1979 at a grass-root exploration stage
  - KATCO JV (Kazakhstan) was setup in 1996
  - Acquisition of Uramin (African assets) in 2007
- **Conversion**
  - Comurhex 2 project (France); announced for feasibility review in 2004; green light given in 2007
- **Enrichment**
  - Purchase of a 50% interest in ETC signed in 2003
  - Start of construction of Georges-Besse II (France) in 2006
  - Launch of an American enrichment project in 2007
- **Fuel Fabrication**
  - Modernization of all fuel fabrication plants (France, US, Germany) a process started in 2005

Uranium strategy

Answer market request and Sustain the nuclear renaissance

- As reflected in World production figures, increasing production remains a challenging task
  - especially after decades of depressed prices,
  - for technical reasons
- Building up on its 50 years experience worldwide, AREVA opted for an enhanced answer to price signal and decided
  - To significantly increase its exploration budget (x5 since 2004, and set to double within 2 years)
  - To speed-up its plans to increasing production at its current mines
  - To set-up a new organization to evaluate and setup partnership agreements and acquisitions
- The friendly take-over on URAMIN is part of this policy

The Uramin project

- Friendly take-over bid launched on June 25, 2007
- A 2.5 billion USD transaction
- UraMin main assets (total identified resources > 240 Mlb U3O8
  - Namibia: Trekkopje
  - South Africa: Ryst Kuil Channel
  - Central Africa Republic: Bakouma
- A more than 7000 tU/year production expected from these deposits after 2012
- Expected advantages
  - Synergies with AREVAs existing mining units
  - A further supply source diversification
  - An enhanced long term security of supply for AREVA's customers

Conversion strategy

don't replicate the uranium market current situation!

- **The "stepchild" stage of the nuclear fuel cycle deserves special attention: a necessary step of the fuel supply chain**
- **Recently, several significant technical incidents and shutdowns occurred at conversion plants: a "weak link" of the fuel supply chain**
- **Willing to:**
  - **Avoid a situation similar to the one prevailing in uranium and allow the nuclear Renaissance quietly growing**
  - **Be in a position to securely operate for the long run**

AREVA decided to launch a

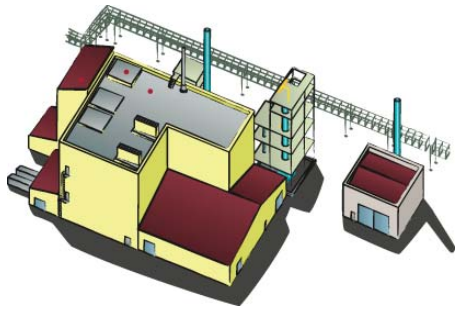
full replacement of its currently operating conversion facilities:

Comurhex 2

The Comurhex 2 project

Comurhex 2 will replace the current Comurhex plants at the same sites of Malvési and Pierrelatte in France

- **Secure the supply of conversion on the long term**
- **Maintain UF6 production close to enrichment production site, Georges-Besse II**
- **Start of construction in 2009**
- **First production in 2012**
- **Flexible capacity**
  - ➔ *from 15,000 to 21,000 t / year,*
  - ➔ *according to market needs*



Enrichment strategy

Embark in the most advanced technology and put it to work!

- **To replace its ageing Gaseous Diffusion Plants, AREVA decided to retain the Centrifuge Technology**
  - **Purchase 50% shares in ETC in 2003**
  - **Start the construction of the Georges-Besse II plant in the fall of 2006**
- **AREVA, decides in 2007 to launch a new Enrichment project to be build in the USA**
  - **With its Georges Besse II project right on track**
  - **and in order to produce enrichment services closer to its customers,**

AREVA Current Enrichment Plants and Projects

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✓ **Eurodif plant**

✓ **Georges Besse II plant**

- **first production by 2009**
- **7.5 MUTS/year**

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✓ **New project plant**

- **2013 – 2014**
- **3 MUTS/year**

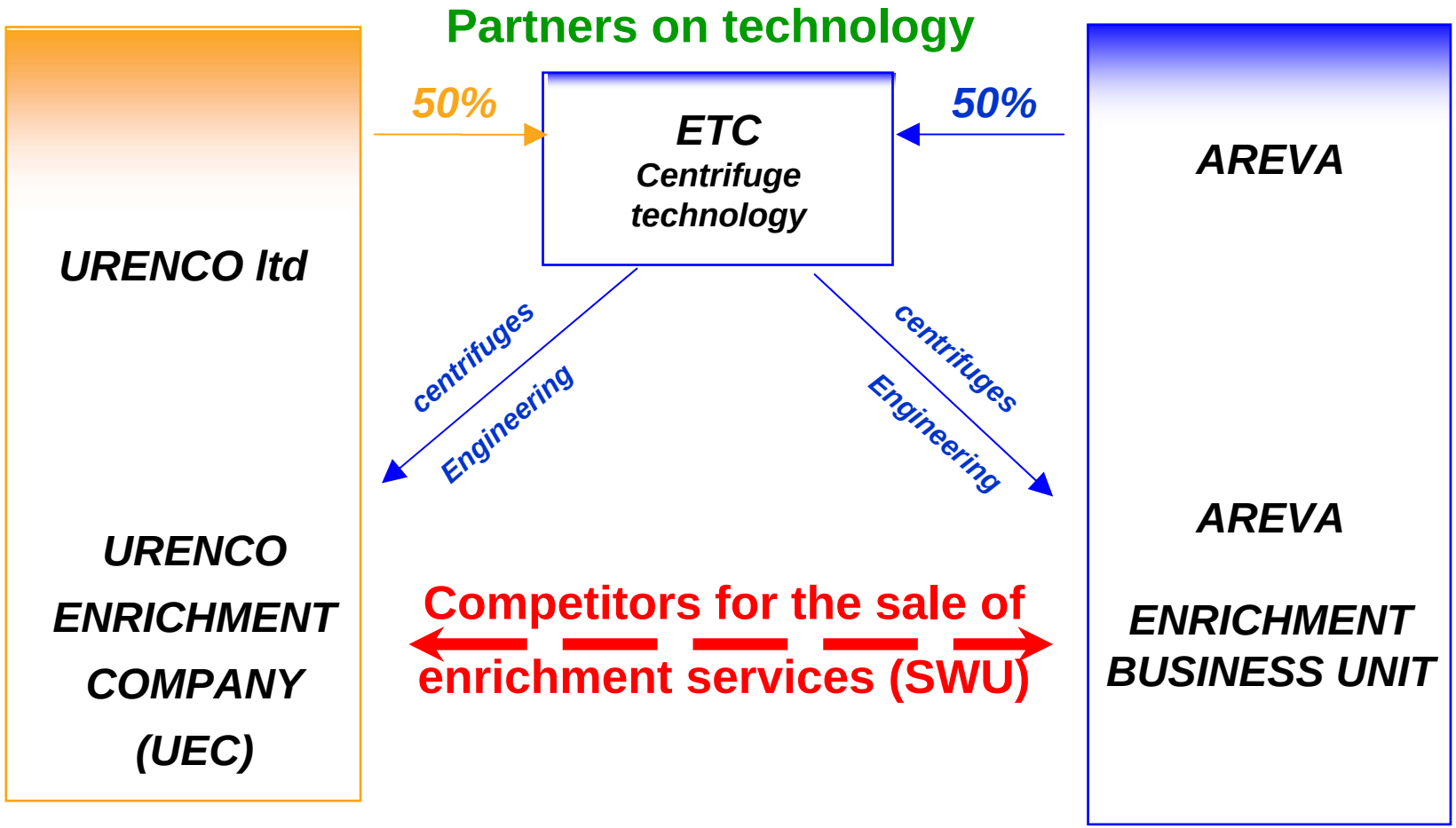
The project Georges-Besse II
When Renaissance comes true!

- **Ensuring long term delivery of uranium enrichment services in accordance with customer expectations**
- **<u>Market related characteristics</u>**
  - **No technological risks, A flexible project capacity, A technology shift transparent to customers, No marketing disruption**

Inside the Centrifuge Assembly Building - July 2007

Secure access to the best *technology*

Industrial agreements between AREVA et URENCO



A strong hand on *project management*

All aspects of the project are fully mastered

- **No financial unknowns / Good cost predictability**
  - **Financed on AREVA's solid balance sheet**
  - **85 percent of project costs are already known, even though project's end is 2018**
- **The Georges-Besse II project takes advantage of an experienced team**
  - **An AREVA subsidiary is the project owner (Société d'Enrichissement du Tricastin)**
  - **Lead contractorship is provided by AREVA-SGN. Past experience: La Hague, Melox**
  - **Centrifuges machines are supplied by ETC, the centrifuge process licensor,**
  - **Cascades are installed and commissioned by ET France, ETC subsidiary.**
- **AREVA's enrichment experience: Manpower in the know**
  - **An ISO 9001 and 14001 site, with a long experience of conversion and enrichment activities**
  - **The current enrichment plant is operated by AREVA since 1978**
  - **A smooth technological transition regarding operators training (in frame of ETC agreement)**

A strong hand on *planning*

Planned schedule for the Georges Besse II plant

- **July 2006** : **Last green light / Cardiff Treaty becomes effective**
- **2006 – 2018** : **Plant construction** (Southern Unit then Northern Unit)
- **April 2008** : **Beginning of the centrifuge machines assembly on site by ETF** (French ETC subsidiary)
- **1st half 2009** : **Commercial production startup.** **1st cascade on line**
- **2018** : **Full capacity of the Georges Besse II plant (7.5 MSWUs)**

Construction site (August 2007)

Conclusive Remarks

- **AREVA massively invests throughout the entire front-end nuclear fuel cycle**

- **With the conviction to contribute to:**
  - **Ease and speed-up the growth of the newly born nuclear renaissance**
  - **Serve our customers' needs**

By securing procurements for the long run


Construction site…
… the movie

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The End

The New AREVA Centrifuge Enrichment Project in the US

- **In order to serve its US customers and in addition to competitors projects *(ACP & NEF)*, AREVA proposes a third domestic enrichment plant to ensure competition and adequate cover of US needs.**
- **Under current planning, this new plant should have a 3 MSWUs capacity.**
- **The expected commissioning is scheduled in 2013/2014 for a full capacity reached in 2017.**
- **ETC centrifuge machines will be installed.**
- **As of today, preliminary studies and first consultations have been launched.**