Sustainability of Uranium Supply

Robert Vance
Uranium Mining and Nuclear Power Consultant
Before some detail, the messages are:

- Identified uranium resources adequate for projected global growth in nuclear power to 2035 and beyond
- Leading practice uranium mining is safe, award winning in fact, and environmental impacts are minimized
- Oversupplied market and years of low price causing producers to cut production
Uranium Resources, Production and Demand ("Red Book")

Recognized source of global resource information since 1965

Key messages in recent editions:

Resources more than adequate to meet high case demand scenarios

Investment and expertise required to bring resources into production

Production costs increasing

Long lead times owing to regulatory requirements

Why Uranium?

• Nuclear Power Plant lifetime 40-60 years; fuel small component of operating costs, but no substitute

• Energy Density many, many times greater than fossil fuels and renewables

• Full life cycle greenhouse gas emissions low, comparable to renewable energy sources

• No NOx, SOx – major contributors to air pollution that is responsible for 7 million deaths /year
Is that all there is?

No! Definitely not!

Promising targets not explored with new technology, new depositional models

History instructive:

1965: without Soviet Union >1 million tU resources identified – 40+ yrs later, after 2.7 million tU mined, >5 million tU identified

1993: Soviet Union states join and contribute resource figures >1.4 million tU resources identified – 20 yrs later, after 865 000 tU mined, >4.5 million tU identified

*Time slice of a dynamic system* – Red Book outlines situation based on available information on resources of economic interest on that date – *not all mineable uranium on planet earth!*

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Leading Practice Uranium mining is safe and environmentally sustainable

- Early strategic period mining conducted with single goal of maximizing production

- Serious health impacts for miners and mill workers occurred during the early strategic mining period

- Main environmental issues resulting from poor practices in the early strategic mining period


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Endless U from Seawater

- 4 billion tonnes at 3.3 ppb in oceans
- “harvest” by adsorption
- possible today, but at high cost
- research in US, China and Japan
- not whether, but when