



# URANIUM EQUITIES

## Uranium Equities Limited

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Dear Shareholder,

### **Corporate Update: 2013 set to be a pivotal year of growth**

As a valued shareholder of Uranium Equities, we would like to take this opportunity to update you on recent developments in the PhosEnergy Process and the Company's exploration focus.

#### *PhosEnergy Process*

The PhosEnergy Process is an innovative patented process for the extraction of uranium as a by-product from phosphate streams used in the production of phosphate-based fertilisers.

On 5 March 2013 we announced the results of a pre-feasibility level engineering study (PFS) which was the culmination of a number of years technical development of the PhosEnergy Process, and in particular the successful demonstration plant operations conducted in the United States in 2012. The PFS estimated a cash operating cost of less than US\$18 per pound of uranium, putting the PhosEnergy Process well within the lowest cost quartile for uranium producers globally.

The PFS was a significant milestone for the Company, and demonstrates the clear potential for Uranium Equities to become a low-cost uranium producer.

The next phase of commercialisation is expected to comprise a continuous on-site demonstration scale operation at the site of an existing phosphate producer in North America. This phase will underpin a Definitive Feasibility Study (DFS) and will be the basis for a full scale commercial facility.

The initial focus of the PhosEnergy team is on the phosphate fertiliser industry in the USA, where we estimate there is an opportunity to recover approximately 6 million pounds of uranium per annum. The worldwide opportunity is in the region of 20 million pounds per annum.

It is also worthy to note that following completion of this PFS, Cameco Corporation committed its final tranche of US\$4 million for the development of the PhosEnergy Process. Interest in the Process following the Cameco tranche is UEQ 27%: Cameco 73%.

Enclosed is a PhosEnergy Process fact sheet which provides further insight.

#### *Exploration*

Over the past 12 months, the Company has moved to rationalise its exploration portfolio to two key projects.

The Nabarlek Project in the Northern Territory, where the Company controls 673km<sup>2</sup>, is highly prospective exploration ground in one of the world's best endowed uranium provinces - the Alligator Rivers Uranium Field. The Company's landholding incorporates the Nabarlek Mineral Lease and several surrounding granted and pending exploration licences.

The Nabarlek Mine was Australia's highest grade uranium mine producing 24.8 million pounds of uranium at an average grade of 1.84%. UEQ is pursuing high grade extensions to



the Nabarlek mineralisation beneath the regionally extensive Oenpelli Dolerite, and repetitions of Nabarlek style mineralisation around the U40 Prospect where the Company has recorded intercepts up to 6.8m @ 6.7% U<sub>3</sub>O<sub>8</sub> from 75m in previous exploration (see ASX announcement dated 16 December 2010).

The immediate Nabarlek region is a rare tenement holding in the Alligator Rivers Uranium Field. The Nabarlek Project is readily accessible from the ground (helicopter support not required) making exploration on the Company's properties a very cost effective proposition in this highly prospective region.

The Rudall River Project is located in the Patterson Province of Western Australia and abuts the Kintyre Mining Lease (currently being explored by Cameco). UEQ recently completed land access negotiations with the Martu people through the Western Desert Land Aboriginal Council. Exploration licences have now been granted, allowing on-ground exploration to begin in 2013. UEQ retains a 15% free-carried interest to decision to mine on the Rudall River properties.

It is currently proposed to use the funds from the non-renounceable pro-rata rights issue announced on 10 April 2013 to progress the Nabarlek Project and for general working capital purposes. Further details are available on UEQ's website ([www.uel.com.au](http://www.uel.com.au)), the ASX website and the attached letter to shareholders.

We believe that 2013 will be a pivotal year of growth for your Company and look forward to sharing positive news with you from both our exploration prospects and the PhosEnergy Process.

Yours faithfully,

TONY KIERNAN  
Chairman

BRYN JONES  
Managing Director



# URANIUM EQUITIES



## THE PHOSENERGY PROCESS

**The patented PhosEnergy Process is a new technology designed to extract uranium from phosphoric acid streams generated in the production of phosphate-based fertilisers. Cameco Corporation (TSX:CCO, NYSE:CCJ) and Uranium Equities Limited (ASX:UEQ) are jointly developing and commercialising the technology. Cameco owns 73 per cent of the process; Uranium Equities retains 27 per cent.**

Cameco Corporation ("Cameco") has invested US\$21.0 million to date and has committed to fund a minimum 50 per cent of Uranium Equities' proportionate share of capital for construction of the first commercial plant, should this occur.

### **UNLOCKING URANIUM IN PHOSPHATES**

Sedimentary and igneous phosphate rock deposits contain uranium in varying concentrations, generally between 30 and 300 parts per million (ppm)  $U_3O_8$ . It is estimated that in the world's 300 billion tonnes (Bt) of reasonably assured phosphate resources there may be as much as 25 million tonnes (Mt) of recoverable uranium<sup>1</sup>.

<sup>1</sup> 25Mt  $U_3O_8$  assumes 100ppm  $U_3O_8$  in phosphate ore and 80 per cent uranium recovery.

# THE PHOSENERGY PROCESS

At the current worldwide phosphate rock production rate of well in excess of 100Mt per annum (phosphoric acid production of 50Mt (as P<sub>2</sub>O<sub>5</sub>) per annum: see Table 1) there is an opportunity to recover up to 20 million pounds (Mlb) of uranium per annum from phosphate fertiliser facilities.

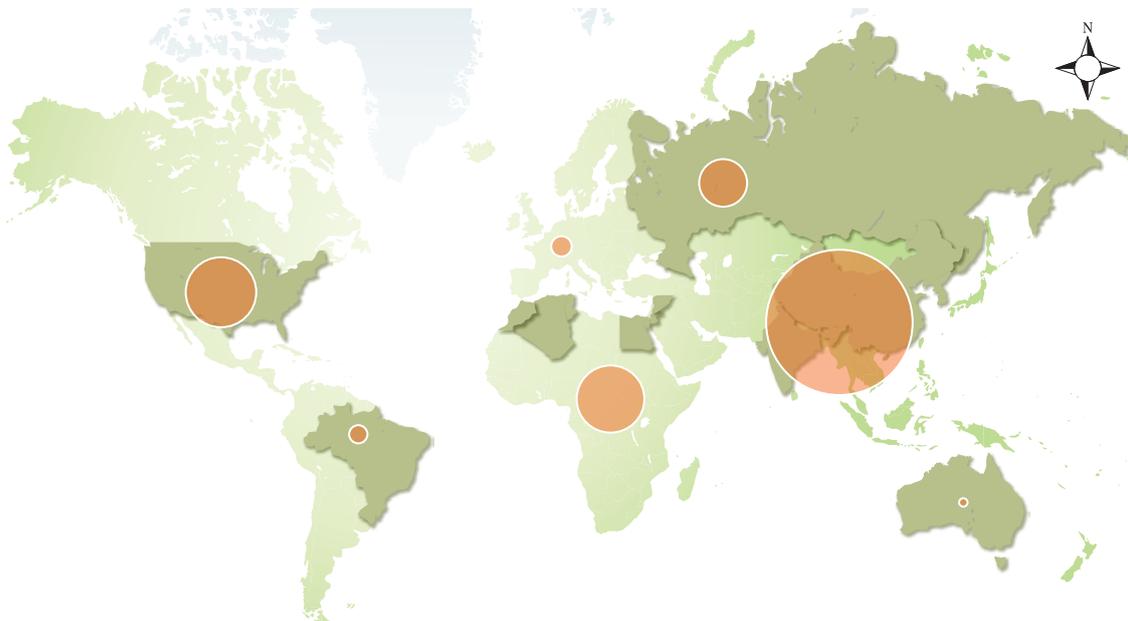


Figure 1: Location of world wide phosphate processing facilities

REGION	P <sub>2</sub> O <sub>5</sub> PRODUCTION CAPACITY ('000 METRIC TONNES)
North America	9,581
Latin America	2,452
Europe	2,371
Eurasia	6,201
Africa	9,357
Asia	19,184
Oceania	507
<b>TOTAL</b>	<b>49,653</b>

Table 1: 2012/13 Worldwide Phosphoric Acid Capacity by Region (source IDFC)

The initial focus for the commercialisation of the PhosEnergy Process is expected to be on the phosphate fertiliser industry in the United States where Uranium Equities estimates there is an opportunity to recover approximately 6Mlbs of uranium per annum. The development of a commercial operation in the United States also has potential synergies with Cameco's existing operations in that region.

## DEMONSTRATION PLANT

A transportable Demonstration Plant, pictured above right (Figure 2), was commissioned in May 2012 and operated in the United States between June and August 2012 on phosphate streams from two different fertiliser facilities. The Demonstration Plant delivered exceptional results including:

- Consistently high uranium recovery (greater than 90 per cent) from the phosphate stream during steady-state operation;
- No deleterious build-up of impurities in the extraction media across multiple cycles;
- Chemical and reagent consumptions within the expected range;
- Purification and concentration of uranium is achievable without significant uranium losses;
- Chemistry of the phosphate stream is unaffected except for the removal of uranium;
- A concentrated product was shipped to a uranium production facility which confirmed that a saleable product can be produced.



Figure 2: The PhosEnergy Demonstration Plant

Based on results achieved to date, the PhosEnergy Process will be capable of exceeding the stringent environmental standards currently applied to both the broader uranium extraction industries and the phosphoric acid industry.

The design criteria derived from the Demonstration Plant fed into a Pre-Feasibility Level Engineering Study, which ran between October 2012 and March 2013.

### **PRE-FEASIBILITY (PFS) LEVEL ENGINEERING STUDY**

The PFS Level Engineering Study has defined capital and operating cost estimates for a PhosEnergy plant located at the site of a nominal 1-million short tonne  $P_2O_5$  phosphate facility in the south-eastern United States producing approximately 880,000 pounds of uranium per annum (Base Case).

Using the outputs of the PFS, estimated project costs are as follows:

- Estimated cash operating costs of less than US\$18 per pound of  $U_3O_8$ ; and
- Estimated capital cost of US\$156 million for the Base Case PhosEnergy plant.

Depending on the (normally) available infrastructure at the development site, additional capital may be required (estimated at up to US\$9 million for a plant in the south-eastern United States).

In Uranium Equities' opinion the results of the PFS put the PhosEnergy Process in the bottom quartile for operating costs of all uranium production worldwide and at a considerable cost advantage over the bulk of new projects likely to come online over the next 5 to 10 years.

Intermediate product transport for toll-milling accounts for a substantial portion of the estimated total cash operating costs outlined above. This represents a significant opportunity for cost-structure improvements both through improved contractual transport arrangements and contained uranium concentration of the intermediate product.

Other opportunities exist in the refinement of reagent usage and power consumption as the development progresses. Estimated operating costs do not include corporate office, marketing and downstream phosphate processing costs which may be incurred. The estimated operating costs will form the basis of commercial negotiations with potential phosphate partners.

### **BUSINESS CASE FOR THE PHOSENERGY PROCESS**

The PhosEnergy Process has the ability to add value to many facets of a phosphoric acid producer's operation, namely:

- Additional revenue through accessing uranium at market competitive operating costs;
- The ability to source and introduce lower quality rock, at lower prices;
- Unlocking a large, dormant and proven source of uranium which is readily accessible; and
- Diversification of revenue.



PhosEnergy Processing Plant Conceptual Layout

## **BUSINESS CASE FOR THE PHOSENERGY PROCESS** (CONTINUED)

With significant experience in the uranium business, Uranium Equities and Cameco can bring the above advantages to a potential development partner, plus:

- Patented technology for the removal of uranium from phosphoric acid;
- The technical support to design, build, commission and operate a facility to extract uranium from phosphoric acid;
- Experience in all facets of the uranium industry, including:
  - Stakeholder engagement (Regulators, community);
  - Radiation safety management; and
  - Marketing and sales.
- Ongoing technical support or operational management of the facility.

## **COMMERCIALISATION STRATEGY**

Cameco and Uranium Equities are seeking to enter commercial arrangements with phosphate producers under which both the technology to recovery uranium from phosphates and the capital required to install the process would be provided in exchange for uranium off-take from the facility.

A joint venture development plan will consider the capital risk taken by both parties, the phosphate producer's appetite for exposure to the uranium market and the long mine life of phosphate projects – generally over 20 years.

The next phase of commercialisation is expected to comprise a continuous on-site demonstration scale operation at the site of an existing phosphate producer. This phase will underpin a Definitive Feasibility Study (DFS) and the basis for a full scale commercial facility.

Uranium Equities estimates that a commercial facility could be constructed and commissioned within three years of the commencement of a DFS.

## **SUMMARY**

Given the results achieved towards the development of the PhosEnergy Process there is potential for Uranium Equities and its partners to secure a significant global position in future uranium production from phosphoric acid.



**U R A N I U M**  
**E Q U I T I E S**

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