

**Buy**  
Unchanged

Price 41p  
Target price 120p (from 100p)

Reuters/BBG BKY.L / BKY LN  
Index FTSE AIM  
Sector Mining  
Market Cap £73.8m

## MORNING COMMENT

### Berkeley Energia<sup>\*#</sup>

#### Feasibility study showcases the robust economics at Salamanca

Berkeley Energia today releases the results of its Feasibility Study which show that the Salamanca project remains the stand-out uranium development project globally. Optimisation studies, and full inclusion of the high-grade, low-strip Zona 7 deposit, by Tier 1 consultants has demonstrated the low capital and operating costs of the project. Producing a LOM average 4.4Mlbs/a U<sub>3</sub>O<sub>8</sub> from Measured and Indicated resources only (for 14 years) the project shows an NPV<sub>10</sub> of US\$699m (WHI est.). The whole area is prospective for further uranium deposits and Berkeley has its Inferred resource inventory around the already outlined deposits which will (in our view) increase the mine life. The key risk is funding for the initial capital cost of US\$96m, but Berkeley is in discussions with power utilities to negotiate long-term offtake and financing. We maintain our Buy recommendation and raise our target price to 120p (from 100p).

- The feasibility study shows that a 4.4Mlbs/a U<sub>3</sub>O<sub>8</sub> (>5Mlbs/a whilst Zona 7 is in production) uranium producer can be built. The initial capital cost is low at US\$95.7m to bring Retortillo into production, followed by US\$59.9m for Zona 7 in year 1 and then US\$80.7m for Alameda in Year 2. The operation runs at a very low operating cost of US\$17.3/lb U<sub>3</sub>O<sub>8</sub> – which includes operating cost, royalties and marketing costs. – falling to US\$15.3/lb U<sub>3</sub>O<sub>8</sub> when Zona 7 is in production. **Zona 7 is the driver behind the updated feasibility study and the outstanding returns**
- We have calculated an NPV<sub>10</sub> for the Salamanca project of US\$699m** (and an IRR of 71%) using consensus forecasts for the uranium price and with a long-term uranium price of US\$65/lb U<sub>3</sub>O<sub>8</sub>. The project already benefits from the extensive EU-funded infrastructure in Spain and the presence of two base metal smelters in country will provide cheap sulphuric acid with no need for an acid plant on site. There is widespread local support for the project in an area which has benefited from uranium mining before.
- Funding is the next step** and Berkeley has already completed a US\$10m raise with RCF Global (equity and royalty), which was issued at a 15% premium to the 30-day VWAP at the time. The company has disclosed that the preferred funding route is through the sale of a minority interest in the project to a strategic partner at a valuation that reflects the net present value of the project.
- Berkeley continues to drill the anomalies generated as a result of the discovery and interpretation of Zona 7. With approvals in place for initial infrastructure development, work has now commenced at site ahead of the main construction later this year
- Our valuation uses a DCF (NPV<sub>10</sub>) for the Salamanca Project with an allowance for Berkeley corporate costs and cash on hand (WHI est.). The analysis uses a consensus long-term price of US\$65/lb U<sub>3</sub>O<sub>8</sub> from 2020. The project is most sensitive to uranium price, but even if the long-term uranium price were to be 40% below our long-term price (i.e. current term prices) the project still makes significant returns for shareholders. **We maintain our buy recommendation and raise our target price to 120p from 100p.** Translation of USD earnings into GBP is naturally more favourable given the ~10% weakening in Cable since 23 June.

\* WH Ireland act as NOMAD and Broker to this company  
# WH Ireland makes a market in this company

#### Marketing Communication

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Y/E June	2017E	2018E	2019E	2020E	2021E
Uranium production (Mlbs U <sub>3</sub> O <sub>8</sub> )	-	0.4	2.4	3.2	5.3
Net Revenue US\$m	-	20.6	141.0	204.7	339.4
EBITDA US\$m	-	12.2	106.8	169.8	258.4

Source: WH Ireland estimates

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**Pitchblende (uraninite)** –  $UO_2$

**Coffinite** -  $U(SiO_4)_{1-x}(OH)_{4x}$

**Autunite** -  $Ca(UO_2)_2(PO_4)_2 \cdot 10-12H_2O$

## Salamanca Project – Background

### Geology

Uranium, in the form of coffinite, pitchblende (uraninite) and, lesser, autunite, is hosted by Ordovician black slates adjacent to Hercynian / Variscan granitic intrusives. The mineralisation forms in veins, breccias and disseminations in structures.

### Resources

**Table 1: Salamanca Project Resources (JORC)**

	Tonnage (Mt)	Grade ( $U_3O_8$ ppm)	Contained $U_3O_8$ (Mlbs)
<b>Measured</b>			
Retortillo	4.1	498	4.5
Zona 7	5.2	674	7.8
<b>Indicated</b>			
Retortillo	11.3	395	9.8
Zona 7	10.5	761	17.6
Alameda	20.0	455	20.1
<b>Inferred</b>			
Retortillo	0.2	368	0.2
Retortillo satellites	2.8	492	3.0
Zona 7	6.0	364	4.8
Alameda	0.7	657	1.0
Alameda satellites	9.1	472	9.5
Gambuta	12.7	394	11.1
<b>Total Salamanca Project</b>			
Measured	9.3	597	12.3
Indicated	41.8	516	47.5
Inferred	31.5	395	29.6
<b>TOTAL</b>	<b>82.6</b>	<b>514</b>	<b>89.3</b>
<b>Resource used in DFS</b>	<b>51.1</b>	<b>531</b>	<b>59.8</b>

Source: WH Ireland Research Berkeley Energia

### Mining

Mining will be from a series of open pits. The mineralisation is shallow (Life of Mine Stripping Ratio is 1.4:1) and conventional techniques will mine the ore with land being continually rehabilitated, with leached ore replaced back in the open pit to reduce the environmental impact.

### Processing

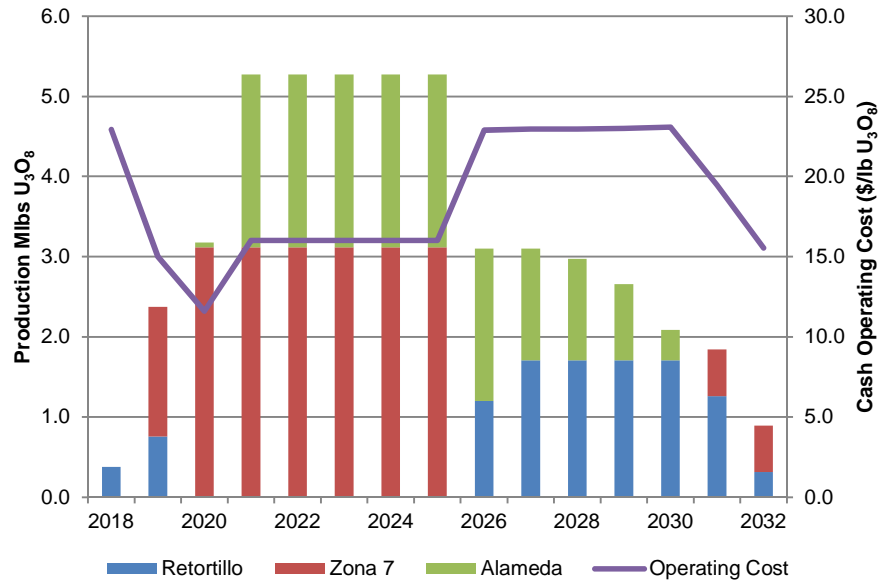
Ore will be heap leached after crushing and agglomerating using on-off leach pads. The ore exhibits low acid consumption and has a short-residence time on the pads. Uranium recovery will be via solvent extraction with overall recoveries of uranium averaging 88%. Following solvent extraction, uranium from the enriched solution will be precipitated and calcined to produce  $U_3O_8$  concentrate for sale or delivery under long-term contracts. There are no impurities in the ore.

The upgrade and refining plant will be at Retortillo. Ore from Zona 7 will be conveyed to site after crushing and then normally heap leached. Ore will be heap leached separately at Alameda before loading the uranium onto resin and transporting to the Retortillo plant for purification and upgrade.

### Production

Production is given in Figure 1 (together with operating cost). The PFS imagined a longer mine life, but at lower production rates towards the end of the mine life of ~1Mlb  $U_3O_8$ /a. The DFS uses a 14 year mine life with only Measured and Indicated Resource. Berkeley is of the opinion that further resources exist in the area and currently Inferred resources can be upgraded to maintain a production rate of >4.4Mlbs/a for a much longer period. We agree that this is a distinct possibility given what we understand of the mineralisation in the area.

**Figure 1: Production and Cost**



Source: WH Ireland research

**Figure 2: Salamanca Project Location**



**Figure 3 Zona 7 and Retortillo Deposit Layout**



Source: WH Ireland Research, Berkeley Energia

### Valuation

We value Berkeley Energia using a Discounted Cash Flow of the Salamanca Project at a 10% discount rate. We add in an allowance for corporate costs and estimated cash to arrive at our Sum-Of-The Parts valuation.

We value Berkeley Energia at 120p – an increase from our early target price of 100p. We have derisked the project for progress as the optimisation studies and DFS have led to a more robust estimate of future economic parameters.

## WH Ireland Model Cost Inputs

Mine Life – 14 years on Measured and Indicated Resources

Construction already begun in 2016 on site preparation. Main construction to begin in late 2016

First uranium production 2018

Mine life 14 years to 2032 – additional production is expected past this as a) inferred resources are reclassified and brought into the mine plan and b) new Zona 7's are discovered. These are expected but not modelled

Capital to first production US\$95.7m

Total capital cost US\$235m (including capital for Zona 7 and Alameda)

Assumed interest rate at 8% on debt repaid over 5 years

We risk the Salamanca project at 40% of its NPV. Unrisked our Target Price would be 330p (based on 198.3m shares in issue).

**Table 2 Berkeley Energia – Valuation Summary Base Case**

Asset	Value – US\$m	Value - £m*	Risk	GBp/share**
Salamanca Project (NPV <sub>10</sub> )	699.4	529.8	0.4	141.1
Berkeley Corporate Costs (NPV <sub>10</sub> )	(50.9)	(38.5)	1.0	(25.6)
Cash and cash equivalents***	6.1	4.6	1.0	3.1
<b>Berkeley Energia Valuation</b>	<b>654.6</b>	<b>495.9</b>		<b>118.5</b>

Source: WH Ireland Research

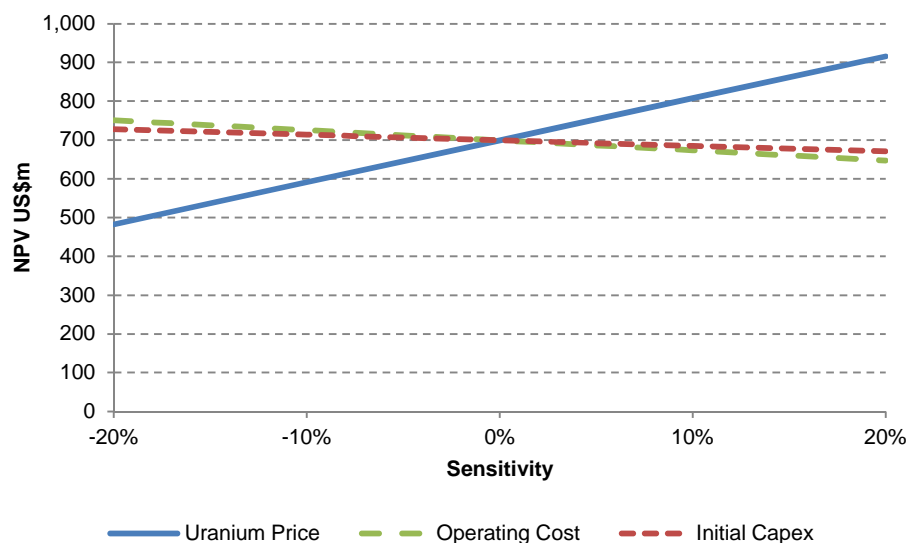
\*Exchange Rate US\$:£ 1.32 A\$: US\$ 0.76, \*\* Based on 198.3m shares in issue

\*\*\* WH Ireland Estimate

## Sensitivity

The project is most sensitive to uranium price and is not so sensitive to the operating and capital cost inputs.

**Figure 4: Salamanca Project – Base Case Sensitivity**



Source: WH Ireland research

Using current term prices for uranium of ~US\$40/lb U<sub>3</sub>O<sub>8</sub> shows just how robust this project is. At a constant uranium price of US\$40/lb (the current term price) the project generates an NPV<sub>10</sub> of US\$288m (and an IRR of 40%) and so still provides good returns to shareholders even at current low prices.

The project has a breakeven price of US\$20/lb using a 10% discount rate which should provide further comfort for financing the project as this is below the level of the current spot price.

We anticipate an increase in the uranium price towards the end of this decade rising in response to increased demand, reduced stockpiles and a lagging project pipeline which has been delayed in the current low price environment; not all projects have the infrastructure in place that Berkeley has at Salamanca.

## Upside to the valuation

There are three upsides we see to our valuation:

Firstly, the increase in the uranium price past our long-term price of US\$65/lb which is a possibility due to the lack of uranium project development and the expected requirement for new uranium production in the period post 2020. If utilities decide to tie up long-term contracts as they did in the latter years of the last decade we should see a spike in the price which could happen just as Berkeley were commissioning at Salamanca.

Secondly, finding additional high-grade "Zona 7" style mineralisation. Berkeley is currently drilling some high-priority targets which we feel could add to the overall uranium inventory at Salamanca.

Finally, the conversion of Inferred resource into the mine plan.

The current mine plan sees production falling to ~3Mlbs/a  $U_3O_8$  for several years after year 8. If there were to be additional ore to allow for over 4Mlbs  $U_3O_8$  this would be a US\$65-100m increase in revenues which would increase our current target price significantly.

Our future valuation once Salamanca is in production will move from a DCF basis to a mixed approach using DCF and financial multiples. Currently uranium producers have an EV/EBITDA in the region of 10x. So a company generating >US\$200m EBITDA per year, as Berkeley will be once in full production, could expect to be valued at many multiples of the current share price. Obviously, for Berkeley, there are the funding, construction and commissioning stages to get through, but it just shows how a company with a significant market capitalisation can be generated from the right project.

## Risks

The risks for the Salamanca are believed to be low. The biggest risk is funding, but Berkeley is in discussions with power utilities for offtake and potential finance funding. It has also used royalty as a means to raise capital – selling a 0.375% royalty on the Salamanca project for US\$5m and gaining US\$5m of equity funding from RCF Global earlier this year, issued at a premium to the share price. Management have a commitment to keep dilution to a minimum and given the impressive economics shown in today's DFS that the project generates we believe that to be a strong possibility.

Other risks are low and include

- Permitting risk – All the important permits have been issued. There is one small local permit yet to gain and approval is required to begin construction from the Ministry of Industry. Local support is high for the project as there will be jobs and inward investment into the region. The region has already seen a full life-cycle of uranium mining and understands the benefits that mining can bring to an area.
- Construction risk – While there is always a risk at the construction stage operations management at the project have already built several successful mining projects in Spain.
- Operating risk – simple mining and processing using known and understood techniques.
- Price risk – we expect the uranium price to rise.

## Next Steps

Following the completion of the DFS Berkeley will begin the process of funding the construction. It will also continue its drilling campaign on high priority targets within a 10km radius of the planned Retortillo plant.

Site preparation is underway in readiness for full construction to begin immediately post funding.

## Disclosures

### WH Ireland Recommendation Definitions

#### Buy

Expected to outperform the FTSE All Share by 15% or more over the next 12 months.

#### Outperform

Expected to outperform the FTSE All Share by 5/15% over the next 12 months.

#### Market Perform

Expected to perform in line with the FTSE All Share over the next 12 months.

#### Underperform

Expected to underperform the FTSE All Share by 5/15% or more over the next 12 months.

#### Sell

Expected to underperform the FTSE All Share by 15% or more over the next 12 months.

#### Speculative Buy

The stock has considerable level of upside but there is a higher than average degree of risk.

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As at the month ending 30 June 2016 the distribution of all our published recommendations was as follows:

Recommendation	Total Stocks	Percentage %	Corporate
Buy	58	82.9	41
Speculative Buy	10	14.3	10
Outperform	1	1.4	0
Market Perform	0	0.0	0
Underperform	1	1.4	0
Sell	0	0.0	0
<b>Total</b>	<b>70</b>	<b>100</b>	<b>51</b>

This table demonstrates the distribution of WH Ireland recommendations. The first column illustrates the distribution in absolute terms with the second showing the percentages.

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