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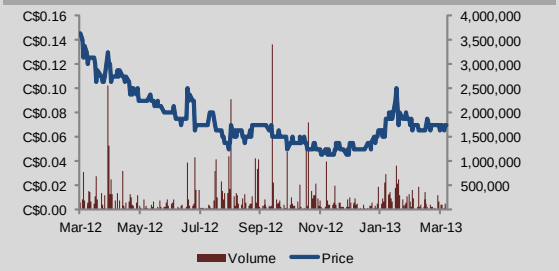
Pele Mountain Resources Inc. (TSXV:GEM)

WATCH LIST COVERAGE

Look at Pele Mountain and See a GEM

- Pele Mountain is an $11m market cap company focused on its Eco Ridge project in Elliot Lake, Ontario. Pele has completed a PEA contemplating the project as an underground mine producing U_3O_8 and REO, including significant Heavy REOs and Sc_2O_3.
- The Elliot Lake region has historically produced over 300Mlbs pounds of uranium is the only mining camp in Canada to have achieved commercial production of rare earths. The project has strong public support and a well understood pathway to permitting.
- Total production over the first 11-years of the mine life is estimated at 27.5Mlb of U_3O_8 and 44.1Mkg of Total REO, including 6.4Mkg of Nd_2O_3, 1.9Mkg of Y_2O_3, 0.4Mkg of Dy_2O_3 and 0.2Mkg of Sc_2O_3.
- Pre-production capex is forecast at $563m and post licensing project development is anticipated to last two years. The PEA estimates a pre-tax IRR for the project of 50% and a $NPV_{10\%}$ of $1.0b.
- The first 10 years of mine life is planned from within the Main Conglomerate Bed, which includes more than 20Mt of Indicated Resources and nearly 17Mt of Inferred Resources. Recent step-out drill results are being incorporated into an updated resource.
- The proposed processing circuit envisioned is forecast to generate 85% of project revenue from uranium, neodymium, and Heavy REOs. Metallurgical testing on HQ samples has successfully produced rare earth carbonate concentrates and U_3O_8 (yellow cake).
- A confluence of positive market developments have U_3O_8 prices poised for a comeback. While new production from Molycorp and Lynas may abate Light REO supply concerns, the need for secure Heavy REO sources outside of China will likely remain unfulfilled.
- Eco Ridge benefits, compared to most of its peers, from a diversified metals mix that includes uranium, Critical REO, and scandium. For investors who believe in a sustained material price appreciation of these commodities, Pele is a prime investment candidate.
- We believe Pele's current market valuation leaves room for considerable upside, particularly in view of the completed PEA, and the potential for expansion and medium-term production at Eco Ridge. Pele is positioned for success as a producer of a geopolitically secure supply of U_3O_8 and Critical REO.

Ticker	**TSXV:GEM**
Date	**March 22, 2013**
Share Price	**C$0.065**
52 Week High/Low	**C$0.15/C$0.045**
Shares Outstanding (millions basic/f.d.)	**153.2/166.8**
Market Cap (millions)	**C$10.0**
Net Debt	**-$1.5**
Cash & Cash Equivalents	**$1.5**
Debt	**$0.0**
Total Enterprise Value	**$8.7**
Beta	**0.8**
3 Month Average Daily Volume	**197,068**
3 Month Price Performance	**30%**



Project Details	
Name	**Eco Ridge**
Location	**Elliot Lake, Ontario**
Stage	**PEA**
Ownership	**100%**
Type of Mine	**Underground, Room and Pillar**
Potential Annual Output	**1,200t U_3O_8 + 3,900t TREO**
Estimated Pre-production Capex	**$563m**
Estimated Opex	**$71.33/tonne**
Product	**U_3O_8, HREO, LREO**
Resources	
Mine Life	**11 Years**
NPV10%	**$1.0b**
Pre-tax IRR	**50%**

Benefits:

Located in historic uranium and rare earth mining camp
Strong public support and well understood path to permitting
Diversified commodity production - uranium and rare earths
Completed PEA - $NPV_{10\%}$ of $1b and IRR of 50%
Large NI 43-101 resources with significant expansion potential
Experienced technical team with extensive history in Elliot Lake
Geopolitically secure source of U_3O_8 and Critical REO

The Eco Ridge Mine Project

Pele Mountain Resources is preparing to transition to the development stage at its flagship, 100%-owned, Eco Ridge Mine Rare Earth and Uranium Project in Elliot Lake, Ontario. In June 2012, Pele Mountain completed a Preliminary Economic Assessment (PEA) contemplating the economics of the project as an underground mine producing uranium oxide (U_3O_8), and rare earth oxides (REO) including significant Heavy REO and scandium oxide (Sc_2O_3).

Eco Ridge is located roughly 11 kilometres east of Elliot Lake. Pele holds a 100% interest in the 39 mining claims (394 claim units and two mining leases) that comprise the Eco Ridge Mine property, which covers 7,882 hectares. Highway 108 crosses the western portion of the property and there is also a public access road that extends across the property. A 236kV power line crosses the property and the Elliot Lake airport is located nearby. Exhibit 1 illustrates the general location of the property.

Exhibit 1: Location of Eco Ridge Project

Source: Company Reports

Pele began acquiring its mining claims in February 2005 and has paid a combined total of $436k comprised of cash payments, share issuances and staking costs. A portion of the claims have a 1.75% NSR applicable of which Pele has the right to purchase 1% for $1-million, while five mining claims to the south of the deposit have a 3% NSR and Pele has the right to purchase 1.5% for $1.5-million.

The Elliot Lake Mining Camp

The Elliot Lake region has previously produced more than 300-million pounds of U_3O_8. It also holds the distinctions of being both the only mining camp in Canada to have achieved commercial production of REO and was once the major source of Heavy REO in North America. The long history of production at Elliot Lake has imbued a strong understanding of several key parameters of the Eco Ridge project. The geology and mineralogy of the quartz pebble conglomerate reefs in the region are well understood, expansive, and relatively consistent in thickness and grade over large areas. The region also benefits from outstanding existing infrastructure, including highways, roads, rail, airport, power, gas lines and deep water ports.

In 1948, uranium was discovered in the Elliot Lake region; shortly after, several zones of radioactive conglomerate were discovered. Mining commenced in 1958 and ceased in 1996 due to low uranium prices caused by a supply surplus. It is estimated that 138.5Kt of uranium was extracted from the district at an average grade of 0.09% U_3O_8. The District was primarily mined by the room and pillar method with most ore treated by conventional uranium processing plant, but with some by underground leaching.

Exploration History

Most historic exploration conducted at Eco Ridge was completed between 1953 and 1955. McIntyre Porcupine Gold Mines started with line cutting and geological mapping and then drilled 28 diamond holes. Pardee Amalgamated then completed additional mapping, trenching, and drilled 30 more holes which, combined with the holes from the McIntyre program, outlined a large zone of U_3O_8 within the Main Conglomerate Bed (MCB). Surface prospecting and mapping led to the discovery of additional mineralization, and subsequent diamond drilling outlined the Pardee Channel (host to the Eco Ridge deposit) down to a depth of 500 metres and a strike length of 5 kilometres. Drilling in the 1960s and 1970s extended the known depth of the deposit to 1,200 metres.

Rio Algom Limited held the near surface part of the deposit on the Eco Ridge property starting in the mid-1960s and drilled two assessment holes to establish a resource estimate for the Pardee Reef (31.3Mt grading 0.059% U_3O_8). This resource was based on 99 holes and set the minimum thickness at 1.5 metres. Rio Algom drilled five more holes on the property and re-estimated the resource but allowed the claims to lapse in the 1990s. CanAlaska Uranium staked the property in late 2004/early 2005 and compiled the property's historic data.

Pele Mountain drilled its first hole on the property in 2005, calculated its first mineral resource and an initial PEA in 2007, and continued exploration and drilling into 2009. An updated resource, based on 238 diamond drill holes totaling 44,066 metres, was completed in 2011 along with an updated PEA, which contemplated processing through a combination of underground bioleaching and surface heap-leaching. The current NI 43-101 resource estimate and PEA were completed in June 2012 based on conventional milling including acid baking to recover U_3O_8 and REO.

Geology

The uranium deposits at Elliot Lake are contained in the sediments of the westward plunging (~15°) Quirke syncline. The mineralization is surrounded to the north and east by Archean granites and to the south by Archean mafic metavolcanic and metasedimentary rocks. Depth from surface to the centre of the Quirke syncline is estimated at approximately 1,500 metres.

Mineralization at Eco Ridge is contained in the conglomerate beds of the Ryan Member, which is roughly 100 metres thick and consists of quartzite of a distinctly green colour (sericite alteration) and quartzite with intercalated quartz-pebble conglomerates. The quartz-pebble conglomerate beds containing uranium and REOs are located in the west-northwest channels of the Matinenda Formation. The Ryan Member represents the lower Matinenda and is characterized by an increase in the amount of pyrite. Low-grade mineralization is generally contained within the coarser-grained quartzite beds while higher grades are contained in quartz-pebble conglomerates with disseminated pyrite. A 30-metre thick Nipissing diabase dyke strikes east-west across the entire property and cross cuts mineralization.

The reefs inside the Pardee Channel on the south limb of the Quirke syncline hold the Eco Ridge deposit. It is believed the stratigraphy of the mineralized reef in the Pardee Channel can be correlated to those of the Nordic Channel, where much of the region's historic mining was conducted. The mineralized zones of the Nordic Channel are separated into Lower, Middle and Upper conglomerate reefs. The Lower Reef is thin and discontinuous; the Middle Reef has been the most historically mined while the Upper Reef has had more limited mining. The Upper Reef is thought to be correlated to the MCB at Eco Ridge.

The MCB and the quartzite floater reefs 6 to 15 metres above it contain the Eco Ridge mineral resources. The MCB contains quartz, quartzite and dark cherty pebble in a fine-grained, pyrite rich matrix. Uranium content is concentrated at the base of the MCB and decreases moving

toward the top of the bed. The MCB ranges from 1.3 to 4.4 metres in thickness. The floater reefs are generally thinner, ranging from 0.1 to 2.0 metres in thickness, and generally contain uranium grades of less than 0.04%. The zone of quartzite with floater reefs above the MCB is referred to as the Hanging Wall Zone (HWZ). The thickness of the HWZ is variable, but U_3O_8 and REO grades appear relatively consistent.

Uranium mineralization in the Elliot Lake region is generally contained within uraninite and brannerite. Coffinite, thorite and an unidentified uranium silicate carry yttrium oxide (Y_2O_3) and Heavy REO, while monazite typically carries Light REO. It has been generally observed that there is a correlation between pyrite content and uranium (pyrite content historically being used as an ore cue) at Elliot Lake and that REO mineralization drops off less rapidly than U_3O_8 mineralization above the MCB.

Mineral Resources and Exploration Potential

The mineral resources at Eco Ridge are contained in the MCB and HWZ which dip at a 20° angle to the north and plunge 10° to the northwest. The deposit runs east-west over a strike of 5,700 metres and a dip of 2,000 metres.

In 2011, Pele discovered that REO mineralization extends well above the MCB with one resampled drill hole revealing more than 140 metres of continuous low-grade mineralization. This prompted the company to conduct a core resampling program which resulted in the addition of significant resources from the HWZ zone and will allow for scalability of future production rates. Exhibit 2 shows the current resource estimate for the Eco Ridge mine. Exhibit 3 summarizes each of the estimated individual REO grades in the resource.

Exhibit 2: Resource Estimate — Eco Ridge Project, June 2012

REO & U_3O_8 Mineral Resources

Main Conglomerate Bed	Tonnes (000)	Total REO		Uranium Oxide	
		Pounds	ppm	Pounds	ppm
Indicated	20,514	73,184,000	1,618	20,447,000	450
Inferred	16,906	54,515,000	1,463	15,940,000	430

Hanging Wall Zone	Tonnes (000)	Total REO		Uranium Oxide	
		Pounds	ppm	Pounds	ppm
Indicated	28,223	51,111,000	821	7,214,000	120
Inferred	20,956	37,329,000	808	5,822,000	130

Source: NI 43-101 Mineral Resource Estimate by Roscoe Postle Associates, April 2012

Source: Company Reports

Exhibit 3: Individual Oxide Grades

Uranium Oxide	Average Grade (%)	Estimated Recovery (%)	Recovered Oxide (000 lbs)
U_3O_8	0.040	90	27,491

Individual REO	Average Grade (ppm)	Estimated Recovery (%)	Recovered Oxide (000 lbs)
CeO_2	657.1	90	44,942
La_2O_3	346.1	88	23,227
Nd_2O_3	210.6	89	14,210
Pr_6O_{11}	65.5	89	4,425
Sm_2O_3	36.3	85	2,355
Eu_2O_3	2.1	79	123
Gd_2O_3	24.3	81	1,496
Sc_2O_3	7.1	61	331
Y_2O_3	71.4	76	4,127
Yb_2O_3	5.0	71	272
Dy_2O_3	15.5	75	882
Er_2O_3	6.5	74	364
Ho_2O_3	2.6	71	142
Lu_2O_3	0.7	74	39
Tb_4O_7	3.4	78	200
Tm_2O_3	0.9	74	49
Light REO[1]	1,304	91	86,804
Heavy REO[2]	179	81	10,381
Total REO	1,483		97,185

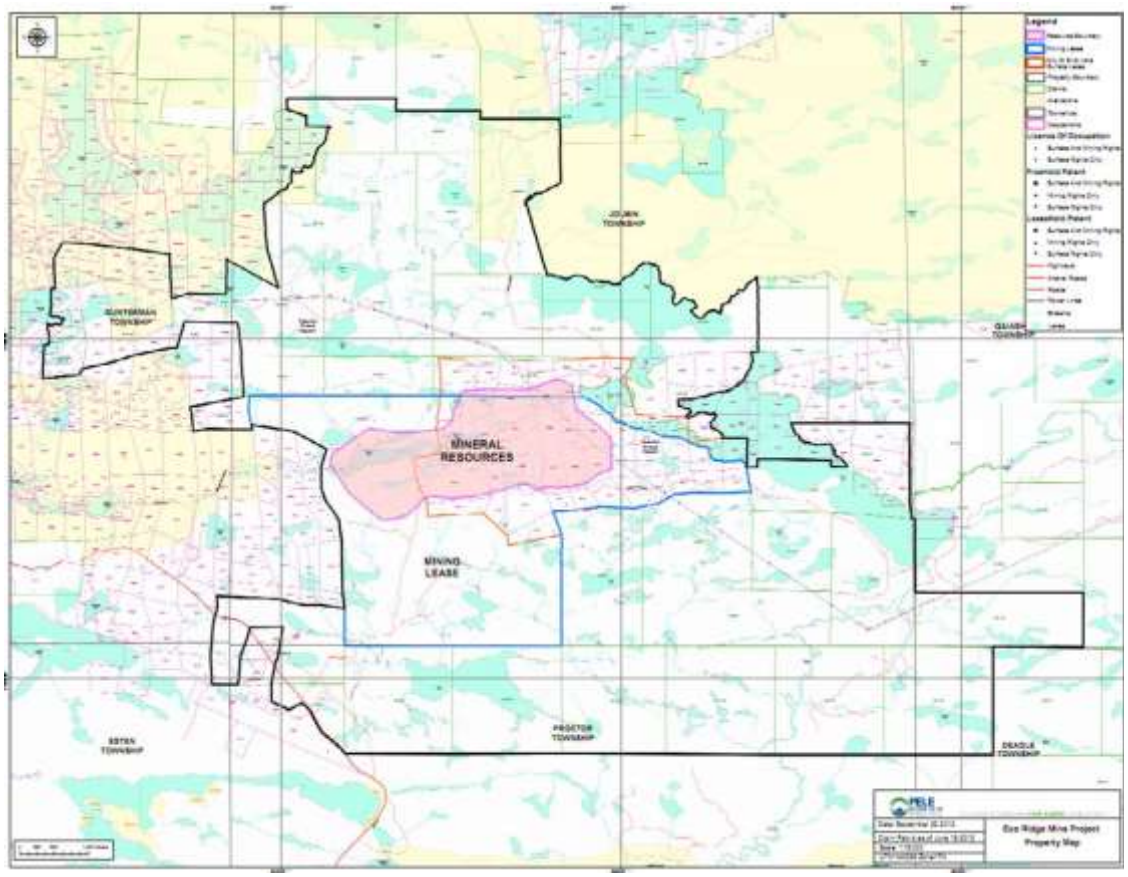
Notes:
1. Light REO includes La_2O_3, CeO_2, Pr_6O_{11} and Nd_2O_3.
2. Heavy REO includes Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Y_2O_3 and Lu_2O_3. Sc_2O_3 is also included in Heavy REO, as it occurs in low concentrations and carries high unit values like a Heavy REO.

Source: Company Reports

Certain historic uranium-focused drill holes were not included in the Eco Ridge resource wire frame because they do not include REO assay data, even though all historic holes intersected the MCB. Sensitivity analysis in the PEA has shown that inclusion of these areas would add three years to mine life and have a significant positive impact on the project NPV and IRR. The same analysis also shows that additional mine-life extensions through increased mineral resources improve NPV and IRR substantially.

Exploration to date has focused on drilling the Lower Matinenda Formation in order to define the MCB and HWZ. Higher grades seem to be localized where physical conditions (e.g., topographic highs in basement rocks) reduced the velocity of mineral-bearing streams. Historic drilling has intersected the MCB down-dip and to the east beyond the current resource wire frame. Exhibit 4 illustrates the general layout of the Eco Ridge claims and the resource outline.

Exhibit 4: Eco Ridge Claim Layout



Source: Company Reports

The Eco Ridge resource has significant potential for upgrade and expansion, with minimal exploration risk in the historically drilled areas. Elliot Lake is known for grade consistency over large areas and Pele has had 100-percent success upgrading Inferred resources to the Indicated category in the MCB.

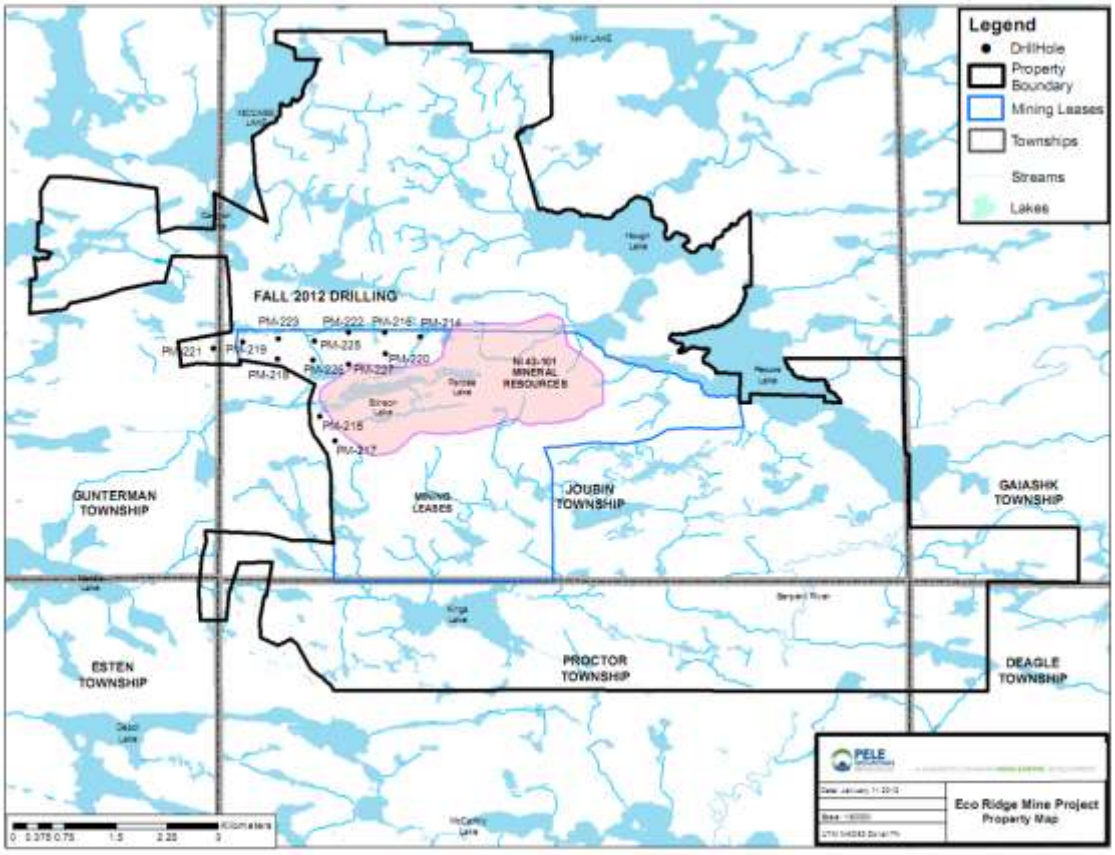
Since completing the PEA, Pele has conducted a 6,500 metre drill program targeting the west and northwest extensions, down-dip of the already-established resource. A total of 11 holes were drilled in the northwest along a strike extension of roughly 3 kilometres and two holes were drilled in the west; 9 of the 11 holes in the northwest intersected U_3O_8 and REO grades higher than the average resource, with holes PM227 and PM222 highlighted.

- Hole PM227 intersected 0.069% U_3O_8 and 2,065ppm Total REO over 3.44 metres and included 299ppm neodymium oxide (Nd_2O_3), 100ppm yttrium oxide (Y_2O_3) and 22ppm dysprosium oxide (Dy_2O_3).

- Hole PM222 returned 0.057% U_3O_8 and 1,949ppm Total REO over 3.71 metres, including 279ppm Nd_2O_3, 94ppm Y_2O_3 and 20ppm Dy_2O_3.

Exhibit 5 illustrates the location of the recent exploration drilling.

Exhibit 5: Recent Exploration Drilling at Eco Ridge



Source: Company Reports

The MCB width and grade appears to improve down dip to the northwest compared to the existing resources. Drilling to the northwest also discovered pyritic bands that contain significant mineralization and are located roughly 150 metres above the MCB. These pyritic bands are greater in thickness than the MCB, ranging from 4.79 metres to 27.97 metres, compared to the average MCB thickness of 2.76 metres. While the grades encountered were roughly half of those in the MCB in the case of U_3O_8, and two thirds for REO, the intersections highlight the potential for significant addition to the existing resources of the project.

Pre-Development at Eco Ridge: June 2012 PEA

In June 2012, an updated resource estimate and PEA were completed by Roscoe Postle Associates, featuring a re-engineered mining plan and a conventional processing circuit including acid baking to improve Light and Heavy REO recovery.

Capital and Operating Costs

Initial capital costs for the Eco Ridge project are estimated at $563 million and sustaining capital costs are estimated at $104 million. The initial capital estimate includes material contingency of $89 million for the processing assets and $18 million contingency for the other components of construction. The processing facilities, estimated at $230 million, are the largest component of the estimated initial capex for the project. Other components include $61 million for the mine, $25 million for infrastructure and $25 million for tailings. The total estimate for indirect costs is $115 million.

In the $61 million capital estimated for building the mine, approximately $32 million is allocated for the purchase of mobile equipment and $26 million for mine infrastructure. The processing capex estimate accommodates for an acid baking plant, a uranium extraction plant, a yttrium and REO extraction plant, and a water treatment plant. The total estimated cost of the acid baking plant is $165 million, the uranium extraction plant is $34 million, and the yttrium and REO extraction plant is $20 million.

Unit costs were estimated in the PEA at $41.52/t for mining, $26.31/t for processing and $3.50/t for G&A. Mining costs were based on third-quartile salaries from the 2010 PWC salary survey and hourly rates from the Sudbury camp collective bargaining agreements for 2008–2011. Processing costs include $0.07/kWh and reagent consumption is estimated using the project's preliminary mass balance and stoichiometry. The estimated cost for sulphuric acid was $90/t delivered to the mine. Processing costs are broken down into $18.33/t for supplies, $3.84/t for power, $2.13/t for labour and $2.01/t for maintenance. G&A estimates per tonne of ore are based on annual G&A costs of $11.5 million.

Economic Analysis

The PEA contemplated total mining of 34.6Mt grading 0.04% U_3O_8 and 1,455ppm Total REO over a mine life of 11 years. Of this amount, 31Mt is from the MCB zone while only 3.6Mt is from the HWZ. Mine development was estimated to take two years with mill commissioning and limited production starting in the second year. The design production rate is 9,000tpd. Built into the economic analysis was an assumed uranium recovery rate of 90%, and Light REO and Heavy REO recovery was estimated at 89% and 75%, respectively. Total production from the mine was estimated at 27.5Mlb of U_3O_8 and 44.1Mkg of Total REO. Assumed prices used were $70/lb of U_3O_8 and $78/kg of Total REO net of separation costs — under these assumptions roughly 36% of forecast revenue came from uranium, 32% from Light REOs and 32% from Heavy REOs. Uranium plus neodymium and Heavy REOs are projected to provide 85% of the total project revenue. Exhibit 6 summarizes the individual oxide production during the first 11 years of the mine life.

Exhibit 6: Individual Oxide Production in First 11 Years of Mine Life

Uranium Oxide (U_3O_8)	**Recovered U_3O_8 (000lbs)**
	27, 491
Individual Oxide	**Recovered Oxide (000 kgs)**
Cerium	20,385
Lanthanum	10,536
Neodymium	6,446
Praseodymium	2,007
Total Lights	**39,374**
Samarium	1,068
Europium	56
Gadolinium	679
Scandium	150
Yttrium	1,872
Ytterbium	123
Dysprosium	400
Erbium	165
Holmium	64
Lutetium	18
Terbium	91
Thulium	22
Total Heavies	**4,708**

Source: Company Reports

The economic analysis was conducted on a pre-tax basis – undiscounted cash flows were estimated to total $2.2 billion. The pre-tax IRR for the project was calculated at 50%. Employing a 10% discount rate, the project NPV was estimated at $1.0 billion. Sensitivity analysis performed in the PEA indicates that economics for Eco Ridge are most sensitive to REO recovery and market price. Exhibit 7 shows how the project's NPV (at a 10% discount rate) changes as the inputs to the analysis are adjusted.

Exhibit 7: Eco Ridge Economic Sensitivity

U3O8 Market Price

Factor	U3O8 Price ($/lb)	NPV ($m)	IRR (%)
0.72	50	728	35%
0.86	60	875	45%
1	70	1,022	50%
1.14	80	1,171	57%
1.29	90	1,319	60%

Capital Cost

Factor	Capex ($m)	NPV ($m)	IRR (%)
0.8	534	1,132	63%
0.9	600	1,077	56%
1	667	1,022	50%
1.1	734	968	46%
1.2	800	914	41%

REO Basket Price

Factor	REO Price ($/kg)	NPV ($m)	IRR (%)
0.33	30	-381	NA
0.66	60	324	26%
1	90	1,022	50%
1.14	103	1,316	59%

Recovery - REE

Factor	Average Recovery	NPV ($m)	IRR (%)
0.85	68%	751	42%
0.925	74%	887	46%
1	79%	1,022	50%
1.075	85%	1,159	54%
1.15	90%	1,295	58%

Operating Cost per Tonne Milled

Factor	Opex ($/t)	NPV ($m)	IRR (%)
0.8	58	1,278	58%
0.9	65	1,151	54%
1	71	1,022	50%
1.1	80	895	46%
1.2	87	767	42%

Source: Company Reports

The PEA also included some preliminary calculations on how an additional 50Mt of ore from the MCB and an increase in the design processing rate from 9,000 tpd to 12,000 tpd might impact the project's economics. An additional 50Mt of ore brings the $NPV_{10\%}$ of the project up to $1.7 billion while an increased mining rate brings the $NPV_{10\%}$ of the project up to $2.1 billion (albeit at a higher initial capital cost of $661 million).

Since publication of the PEA, market prices for uranium and rare earths have dropped. However, we believe that material supply and demand drivers exist which could lead to an increase in uranium and Critical REO prices in future years. Furthermore, the potential to extend mine life at Eco Ridge and the opportunity for a secure REO supply to end-users bolster the project's attractiveness. We believe that while marginal at current market prices, Pele and Eco Ridge offer leverage to higher metal prices.

Permitting & Pele Technical Team

The project has strong public support and a well understood pathway to permitting. Public support for Eco Ridge has been highlighted in correspondence from local officials, as well as from the provincial and federal government. Pele has also updated its Project Description for Eco Ridge,

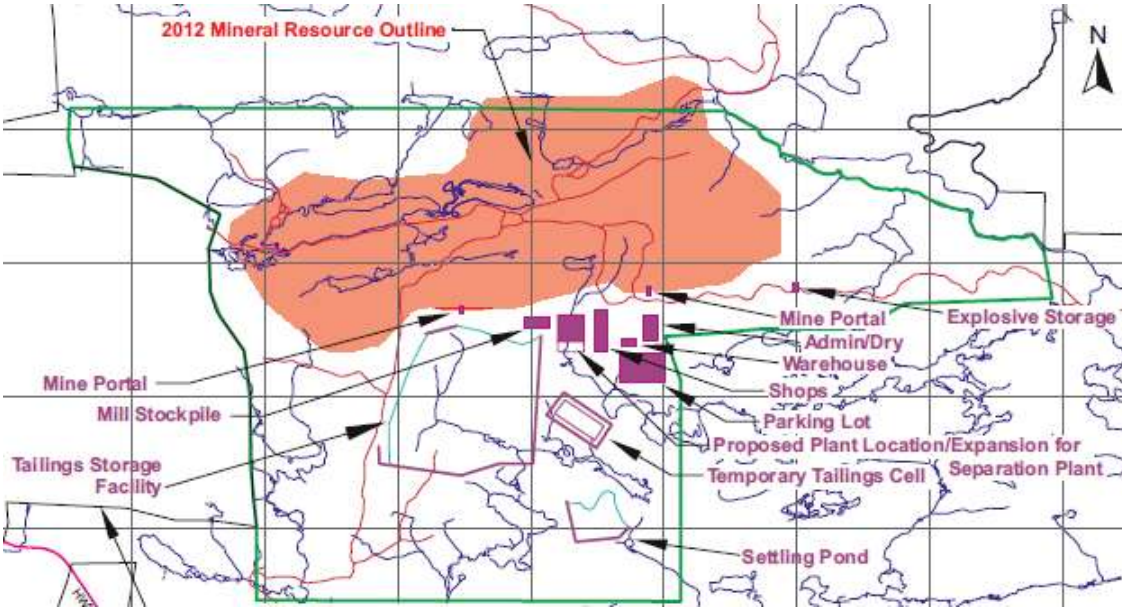
detailing its approach to sustainable development in preparation for commencing the licensing process. The Company is targeting 2016 to receive a license to construct the Eco Ridge Mine.

Pele's technical team is led by Roger Payne P. Eng, putting the company at an advantage in its community and governmental relations. Mr. Payne has two decades of Elliot Lake experience, including oversight of the precedent-setting mine closure process during the 1990s as General Manager for Rio Algom Limited. He and CEO Al Shefsky oversee work by key consultants including Roscoe Postle Associates, SNC-Lavalin Inc., SENES Consultants Limited, Golder Associates Ltd., SGS Canada Inc., and Saskatchewan Research Council. Preparations for permitting have been led by SENES and Golder both of which have previously handled licensing, and decommissioning mines in Elliot Lake. Aboriginal, environmental, and land issues are led by Pele Director and professional archaeologist Martin Cooper.

Mining

Pele expects to mine Eco Ridge using room and pillar methods at a rate of 9,000tpd. Mine development will be conducted in ore with mine access by two sets of ramps — one in the east part and the other in the west part of where the deposit outcrops at surface. Exhibit 8 illustrates the preliminary layout of the Eco Ridge project.

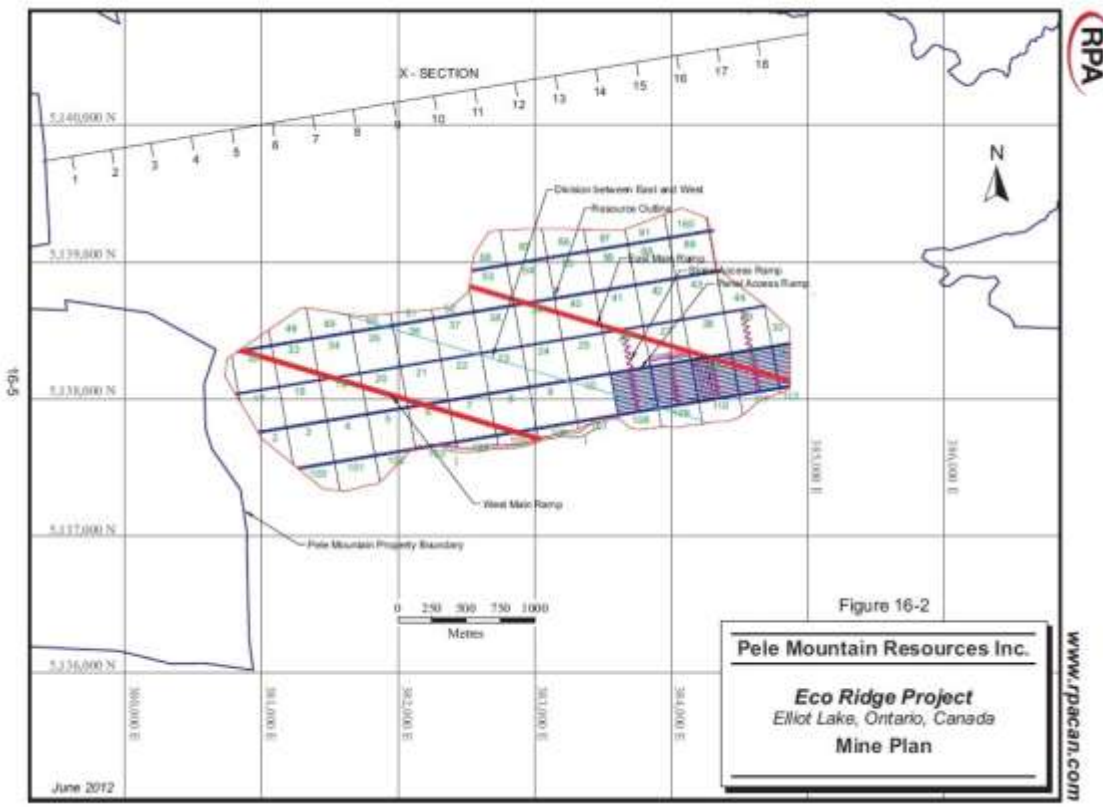
Exhibit 8: Preliminary Eco Ridge Project Layout



Source: Company Reports

Mining blocks are planned at 300 metres strike x 300 metres dip. Each block will have an entry and exit connected to a ramp driven at 18°. Each mining block is designed to have 24 stopes (20 metres wide x 150 metres long) with 12 on each side of the block's access ramp. Rib pillars will be spaced every 20 metres. In the PEA mining calculations, the grade was reduced 2% to account for dilution. The authors of the PEA note that this is a lower dilution rate than what has been previously experienced in the Elliot Lake camp but technology improvements are expected to close this gap. Exhibit 9 illustrates the mining layout.

Exhibit 9: Preliminary Eco Ridge Mine Layout



Source: Company Reports

Ground water inflows within the mine are not expected to be substantial and the bulk of the water underground will be from drilling and wetting muck. Dewatering requirements are estimated at 19 l/s with the pumping system designed to a capacity of 31 l/s. Submersible pumps will be deployed in development headings and main sumps.

Electrical power to the underground at full production will require capacity for 8.5MW. Power will be delivered to operations via a 44kV overhead line running 10 kilometres from the Elliot Lake grid to the mine. Transformers will be installed to service the main ventilation fans and portable transformer stations will service mobile equipment (such as drill jumbos, dewatering pumps, auxiliary fans and area lighting).

Operations at the mine are planned in two 10.5-hour shifts, seven days per week. Mechanical equipment availability is forecast at 85%. The primary mining equipment likely to be required includes six jumbos, four charging rigs, eight 5m^3 scoops, eighteen 30-tonne haul trucks and seven bolting jumbos. Peak manpower anticipated at Eco Ridge is approximately 250 people.

The PEA evaluated the potential of using a conveyor to haul ore to the surface rather than trucks. In this scenario, an additional ramp would be driven, within which a conveyor would be installed. Muck would be transported to the secondary conveyors, which would then transport the muck to a transfer chute and grizzly feeder feeding the main conveyor.

The initial capital cost under this scenario was approximately $10 million less and forecast operating cost was reduced 15%. It was determined, however, that the capex and opex benefits were offset by a required change in production schedule that would reduce the flexibility to mine higher grades in the first years of production. The conveyor scenario resulted in a slightly lower

IRR but slightly higher NPV. The authors of the PEA believe that the conveyor concept should not be abandoned as it may provide operational advantages that are difficult to quantify at this point. Some of these advantages could include better ventilation, reduced ramp traffic and easier material handling at depth.

Processing

The processing flow chart used in the PEA included pre-concentration by flotation and high-intensity magnetic separation, acid baking and leaching, and solvent extraction/precipitation. Mill daily throughput is designed at 9,143 tonnes, operating 350 days per year.

The processing flow chart in the PEA calls for ore to be crushed to 100% passing 300µm. Ore beneath 25µm is directed to the froth flotation and ore larger than 25µm is routed to the magnetic separation circuit. The magnetic separation concentrate is ground to 100% passing 74µm and then mixed with the concentrate from the flotation circuit. The final concentrate is then filtered to remove moisture and directed to the acid baking process. Thickened tailings from the magnetic separation and flotation circuits are sent to a paste backfill plant.

The concentrate is mixed with sulphuric acid at an acid-to-concentrate ratio of 0.3:1 and is cured for one hour. The mixture is then baked in a rotary kiln at 310°C for three hours. The solids from baking are then discharged into the leach circuit for three hours. During leaching, the uranium and rare earth sulphates are dissolved and the slurry is pumped to a solid/liquid separation circuit. The pregnant leach solution is then sent for purification and recovery of valuable metals – treatment of the pregnant leach solution was beyond the scope of the PEA but certainly needs to be defined further by future testwork.

In 2012, Pele undertook further metallurgical testing to investigate purification and precipitation processing methods that produced mixed REO and U_3O_8 (yellow cake). Pele continues metallurgical testwork to optimize the processing parameters in preparation for pilot plant operation.

Market Analysis

Uranium and Rare Earths

Uranium has a number of pending fundamental demand drivers that could push its price higher. Japan's recent elections were won in a landslide by the Liberal Democratic Party, which is known to be pro-nuclear and is expected to bring a number of nuclear plants back online over time. There are more than 60 reactors under construction worldwide and by year-end a major Russian supply agreement that contributes 24Mlb of U_3O_8 to the market annually will come to an end.

The REO market is more complex, more opaque, and dominated by China. Rare earths are primarily sourced from carbonates (bastnaesite) and phosphates (monazite and xenotime) with the bulk of global supply mined at the Bayan Obo iron rare earth deposits in Inner Mongolia (primarily Light REO), the bastnaesite deposits in Sichuan, China (also primarily Light REO), and the ionic clay deposits in southern China produce over 95% of the global supply of Heavy REO. While China has produced 97% of the world's REO output in recent years, it cut its rare earth export quotas by 40% in 2011. The shutdown of illegal mining operations, a market consolidation and a strong increase in downstream manufacturing growth within China have led to an overall reduction in the availability of REOs in the rest of the world.

As scarcity and demand varies for individual REOs, some REOs are in supply deficit while others are in surplus. While new production is expected to abate certain Light REO supply concerns, it is likely that the need for secure Heavy REO sources outside of China will remain unfulfilled.

Of greatest concern according to the U.S. Department of Energy, is the market for the most Critical REOs, which includes Heavies dysprosium, europium, terbium, and yttrium oxides, along with light neodymium oxide. Scandium oxide is also currently undersupplied to the market and is in high demand for use as an alloy in aluminum and a component in solid oxide fuel cells. There is considerable uncertainty regarding future supply of these elements and many market analysts expect the Critical REOs to rise in price over time. Meanwhile, Light REO supply was expected to

increase with imminent mine start-ups (Molycorp and Lynas) adding 30 to 40Kt to the market – perhaps even saturating the Light REO market. However, this new supply has not yet materialized.

Rare Earth Development

While the expectation of a pending saturation of the Light REO (particularly cerium and lanthanum oxides) remains, emerging industry leaders Molycorp and Lynas have struggled with production delays. Other development companies, including some with great quantities of the most Critical REO, have had even greater difficulties, encountering sharply rising capex (especially for remote locations), challenging metallurgy and engineering, and geopolitical and permitting concerns. The rare earth industry has not met its timelines to challenge China's market dominance.

Pele is positioned for success as a producer of a geopolitically secure supply of U_3O_8 and Critical REO. While Pele's deposit is relatively low-grade among today's aspiring rare earth and uranium developers, its pathway to production is well understood at Eco Ridge because 12 mines have successfully achieved past production at Elliot Lake and the vast experience that the Pele team has working in the camp.

Due to fundamental shifts detailed above, many market analysts expect the uranium price to rise from current levels over the intermediate-term. This benefits Eco Ridge, relative to other rare earth projects, because the uranium market, despite its volatility, is more mature and stable than the market for rare earths. At Eco Ridge, uranium is a primary revenue source, offsetting significant opex costs and helping to insulate the company from volatile rare earth prices, effectively reducing project risk. This diversification of revenue offers a sharp contrast to other projects which must address the handling of radioactive material that isn't a revenue source, but rather a waste product only.

Conclusion

Pele expects to complete an updated resource estimate for Eco Ridge in Q2-13 as efforts to optimize the process flow chart continue. Typical of junior companies, forecasting the achievement of major project milestones, such as completion of the feasibility and licensing processes, is inevitably linked to financing availability and terms. Pele ended the year with $1.4m in cash and cash equivalents.

Pele is engaged in discussions with end users of both uranium and rare earths. Management is optimistic that long term off-take agreements for uranium from Eco Ridge can be negotiated with nuclear utilities. With such agreements in place, and the project significantly de-risked, it may render Eco Ridge more attractive to end users of rare earths, facilitating strategic partnerships. Pele's goal is to start the licensing process for construction of the mine as soon as acceptable financing is available.

We believe Pele's current market valuation leaves room for upside, particularly considering the project's advanced, pre-development stage, the completion of a positive PEA, and the demonstrated potential for project expansion. Eco Ridge benefits from a diversified metals mix that includes uranium and scandium and has a well understood path to permitting and then construction.

With total production estimated at 27.5Mlb of U_3O_8, 44.1Mkg of Total REO, including significant Heavy REO and Sc_2O_3 over the first 11-years of mine life, Pele is positioned for success as a developer of a geopolitically secure supply of U_3O_8 and Critical REO.

Several fundamental factors suggest that the uranium market will improve in the years ahead, and there is still no clear supply solution to forecast shortages of the Critical REO. If investors believe in a sustained material price appreciation of U_3O_8 and REOs beyond current levels, then Pele is a prime investment candidate.

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- There is sufficient commercial and technical validation;
- Give investors direct exposure to a compelling broad/macro trend that is sustainable over the mid to long-term;
- Are on the cusp of a significant commercial ramp and/or profitability; and
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Speculative Buy: Anticipate total return appreciation generally in excess of 25% over the next 12 months, however, the company is either pre-revenue, has negative cash flow, or a major unpredictable event may occur within 12 months.
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