

ASX Announcement 6 November 2013

# RNI CONFIRMS LOW-COST GOLD PRODUCTION PATHWAY FOR GROSVENOR AND PEAK HILL

Feasibility studies show weighted average cash costs of ~\$A990 per ounce
 Discussions commenced with financiers and potential funders

**Resource and Investment NL** (ASX: **RNI**) is pleased to announce that updated feasibility studies have confirmed the Grosvenor and Peak Hill gold projects in Western Australia's Bryah Basin can generate robust and sustainable financial returns for the Company. The updated studies have doubled the mine life to an initial eight years.

Significantly, the studies have produced weighted average life-of-mine cash operating costs of \$A990/oz, which meets RNI's stated goal of identifying a low-cost and near-term production pathway for Grosvenor and the adjoining Peak Hill project targeting costs of less than \$A1,000/oz.

As previously announced, the feasibility studies were undertaken to evaluate the economics of mining various resources within the Grosvenor and Peak Hill projects, which have combined gold resources of ~2Moz (Appendix 1).

The studies were conducted by a range of independent consultants<sup>1</sup> (Appendix 2). Multiple processing options were examined involving the existing 1Mtpa carbon-in-leach (CIL) facility and various leaching options. The studies have concluded that utilising RNI's CIL gold processing plant and heap leaching lower grade Grosvenor and Peak Hill mineralisation gives the best economic outcome.

## Key findings include:

- Gold production significantly increased to ~850Koz gold over eight years
- Weighted average cash costs of ~\$A990/oz over the life of mine
- Life of mine revenues of over \$1.1 billion (using a modelled gold price of \$A1,400/oz) and net cash flows (pre-tax, post capex and sustaining capex) of over \$200 million
- Net Present Value of \$149 million (pre-tax) using an 8% (real) discount rate
- Two-year payback on pre-production capital expenditure of \$40.5 million
- 82% internal rate of return

RNI Chairman Miles Kennedy said he was delighted with the findings of the independent studies.

"These studies show that the Grosvenor and Peak Hill gold projects are economic and feasible to develop, using multi-processing options."

"The results provide a pathway to sustainable gold production for RNI which is both low-cost and near-term. The economics of developing these projects are further enhanced by the significant tax losses RNI has which can be applied against future gold production earnings."

"Following recent discussions with third parties, we also believe there is scope for further reductions in the capital expenditure requirements to commence production."

Mr Kennedy said the RNI Board and its advisers were in discussions with financiers and potential funders to advance the Company's gold production plans.

For the avoidance of doubt, all optimisation metrics reported here in these studies are inside pit shells optimised by external consultants using the Whittle $^{\text{TM}}$  mine planning software. These inventory metrics are the recoverable resource and not ore reserves. Ore reserves, once engineered and scheduled, will be progressively released, to JORC 2004 or 2012 standard.

The recent studies undertaken by RNI included the review, optimisation and re-estimation of a wide range of inputs including the re-development of the high-grade Daylight pit (the open pitable part of the high-grade Starlight underground resource), processing costs, capital costs, the mining site panel and power generation options.

RNI's Grosvenor project includes gold resources of 1.4Moz, while the Company has an option to acquire the ~550Koz Peak Hill gold project from Montezuma Mining Company Limited. As announced to the ASX on 1 November 2013, RNI has extended the option with Montezuma to 31 January 2014. The Grosvenor project includes the 1Mtpa nameplate Grosvenor gold plant and supporting infrastructure, along with a dominant 1,800km² holding in the Bryah Basin which is prospective for both gold and base metals.

RNI has been refurbishing the Grosvenor gold plant and advancing the mining approvals required to resume production. The Grosvenor gold plant has reached a stage where a minimum of \$3.5 million is required to achieve production-ready status.

The background and detail of the updated feasibility studies are outlined below.



Figure 1: Grosvenor CIL gold processing plant

#### **UPDATED FEASIBILITY STUDIES**

## Introduction

Following extensive metallurgical testwork to determine the suitability of Bryah Basin gold mineralisation to Heap Leach (HL) recovery, RNI commenced studies on two production pathways (conventional CIL and HL). Independent study participants are listed in Appendix 2. It was recognised that a HL production pathway suffered a capital penalty relative to CIL, as RNI's Grosvenor CIL plant is already built and requires just ~\$A3.5 million to restart. Both production pathways share the same additional start-up infrastructure and mining capital costs. The HL process will benefit from being able to recover the gold from the existing CIL plant.

RNI had previously completed a Bankable Feasibility Study (BFS) on a three pit CIL processing start-up in November 2012. A revision of this study forms the basis of the updated CIL processing route and study.

The CIL study is at Feasibility level. HL studies and capital estimates are Pre-Feasibility level. A separate, shorter, mining study had been completed at Scoping Study level, on underground options at Grosvenor.

All open-pit studies and optimisations have been completed on a \$A1,450 gold price assumption and an 8% hurdle rate. The underground Scoping Study is based on a \$A1,500 gold price assumption and a 12.5 % hurdle rate.

For the avoidance of doubt, all optimisation metrics reported here are inside pit shells optimised by external consultants using the Whittle™ optimisation planning software. These inventory metrics are not ore reserves. Ore reserves, once engineered and scheduled, will be progressively released, to JORC 2004 or 2012 standard.

Each resource, with modifying factors, is presented to the optimiser together with the cost/recovery assumptions for each process. The total projected split is  $\sim$ 7.1Mt of CIL mineralisation and  $\sim$ 4.4 Mt of HL mineralisation. This equates to a 68% to 32% tonnage split and an estimated 78% to 22% recoverable ounce split. Overall, the Grosvenor open pit optimised stripping ratio is estimated  $\sim$ 8:1. At Peak Hill  $\sim$ 3.8Mt of targeted optimised mineralisation is feasible with HL recovery technology at an overall stripping ratio of  $\sim$ 2.9. Studies on underground options are targeting high-grade CIL feed as a staged addition the open-pit production options.

## Regulatory and Start Up Approvals

As previously reported, RNI has at hand, or under review, WA State approvals for:

- operation of the CIL plant with a current Licence for a prescribed premises;
- a current 3.1Gl Water licence, which allows for pit dewatering and water supply to the plant;
- separate approved processing and pit dewatering safety Project Management Plans;
- Works Approvals for a tailing storage facility (TSF) lift to provide 18-24 months tailings storage;
- a permit to dewater open pit workings into the Yarlarweelor creek;
- a current Mining Approval for Toms Pit;
- a Mining Approval for Yarlarweelor and Callies pits and TSF3 design are under active review; and
- an approved surface water management hydrology plan.

Detailed design work has been commissioned for the Daylight open pit and short, medium and long term mine planning activities have commenced to coincide with ongoing WA Mines Department statutory submissions. Ore Reserve reporting will occur once compliant JORC 2012 reserves have been declared.

#### CIL - Feasibility Level Outcomes

7.1Mt inventory at estimated recovered grades of 2.44 g/t

Mineralisation from six Grosvenor pits has been optimised to provide CIL feed in optimised studies. Two of the six pits provide ~70% of the potential inventory. Studies have focused on re-estimation and benchmarking major contracts and cost components (mining, processing, manning and staffing numbers, salaries, capital requirements and shared fixed costs).

The Grosvenor CIL plant has 1Mtpa nameplate and can treat oxide, transitional and fresh mineralisation. Optimisations were pre-driven so that mineralisation reported to the CIL plant at its nameplate capacity. The study has realised a potential 8-year CIL timeline with a potential inventory of 7.1Mt at recovered grades of 2.44 g/t. An approximate 65% of the reported inventory is in the Indicated Resource category.

#### **OPTIMISED OPEN PIT CIL INVENTORY**

		Inventory- CIL method					
		Inventory		Metal (Au)			
Option and resource source	Shell	Inventory Processed	Grade	Processed	Recovered		
		kt	g/t	k oz	k oz		
Yarlarweelor	35	2,939	2.07	195.9	185.1		
Toms	36	207	2.15	14.3	13.6		
Callies	36	264	2.73	23.2	21.8		
Daylight	36	2,105	3.34	225.8	212.2		
Nathans	25	386	1.97	24.5	23.0		
НСР	36	1,206	1.91	74.0	69.9		
TOTAL		7,107	2.44	558	526		
Proportion by tonnes of CIL process	ing method	62%					

Table 1: Potential CIL inventory at Grosvenor

The CIL component of the project has effectively been de-risked from a project approval and technical perspective.

## Heap Leach - Pre-Feasibility Level Outcomes

~4.4Mt inventory at estimated recovered grades of 1.06g/t

Extensive metallurgical testwork has demonstrated the Grosvenor and Peak Hill mineralisation is amenable to HL recovery methods. Unlike the Yilgarn and gold provinces to the east of WA, which have limited quality water supply, the Byrah has good quality ground water and the depth of weathering is up to 150 metres or more in places. The Company has previous released the results of heap leach test work undertaken over various ore types from the proposed mining operations.

Pit optimisations have determined ~4.4Mt of open pit mineralisation is inventory at mining and HL revenue factors.

## OPTIMISED HL OPEN PIT INVENTORY, GROSVENOR

		In	ventory- HL p	processing opti	on	
Ontion recourse and presention	Shell	Inventory Processed		Metal		
Option resource and proportion allocated			Grade	Processed	Recovered	
		kt	g/t	k oz	k oz	
Yarlarweelor *	35	1,568	0.81	40.9	33.5	
Toms	36	420	1.42	19.1	17.2	
Callies *	36	355	1.01	11.5	7.5	
Daylight *	36	2,015	1.19	77.0	50.0	
TOTAL		4,358	1.06	149	108.2	
Proportion by tonnes of HL processing method		38%				

<sup>\*:</sup> Ongoing testwork

Table 2: Potential HL inventory at Grosvenor

#### **Grosvenor CIL and HL**

## Total mine plan inventory

Both CIL and HL mineralisation can be mined and processed concurrently. Overall cash costs are projected to be \$A990/oz. This results in a total Grosvenor project inventory of 11.4Mt at a recovered grade of 1.92g/t, with an overall stripping ratio around ~8.2.

	Inventory- TOTAL							
	Inventory		Meta	ıl (Au)	Waste	Total	Strip	Cost per recovered
Option	Processed	Grade	Processed	Recovered			Ratio	ounce
	kt	g/t	k oz	k oz	kt	kt		\$/rec oz
*Yarlarweelor	4,507	1.63	236.8	218.5	24,056	28,562	5.3	\$872
*Toms	627	1.66	33.4	30.8	4,009	4,636	6.4	\$858
*Callies	620	1.74	34.7	29.3	5,951	6,570	9.6	\$1,112
Daylight	4,119	2.29	302.8	262.3	48,964	53,083	11.9	\$1,045
*Nathans	386	1.97	24.5	23.0	2,391	2,778	6.2	\$1,085
*HCP	1,206	1.91	74.0	69.9	8,356	9,562	6.9	\$1,139
TOTAL	11,465	1.92	706	634	93,726	105,191	8.2	\$991

<sup>\*:</sup> Pits and infrastructure with detailed design

Table 3: Total Grosvenor optimisation results. Metrics reflect both CIL and HL options

#### **Peak Hill**

RNI has under option the Peak leases held by Montezuma which include ~550Koz of classified resources (Appendix 1). At Peak Hill, pit optimisations result in a potential inventory of 3.8Mt at cut-off grades of around 0.7g/t. A potential inventory of ~127Koz gold has been scoped to support a standalone, HL operation. Approximately 81% of the potential 3.8Mt inventory is in the Indicated Resource category.

#### OPTIMISED HL OPEN PIT MINE PLAN, PEAK HILL HL RESOURCE

	HL Inve	ntory Meas	sured and Indicated		Total	Chuin.		
			Metal				Waste	Cost per
	Inventory Processed	Grade	Processed	Recovered		1014	Strip Ratio	recovered ounce
	kt	g/t	k oz	k oz	kt	kt		\$/oz
TOTAL	3,019	1.52	148	95	6,783	9,803	2.2	\$936
			Average Recovery	64%				

#### **PEAK HILL HL RESOURCE**

	HL Invent	ory Measur	asured, Indicated and Inferred resource					
			Metal		Waste	Total	Ct	Cost per
	Inventory Processed	Grade	Processed	Recovered	Waste	lotat	Strip Ratio	recovered ounce
	kt	g/t	k oz	k oz	kt	kt	1	\$/oz
TOTAL	3,843	1.59	196.0	126.9	9,961	13,805	2.6	\$921
			Average Recovery	45%				

Table 4: Peak Hill pit optimisation results

## **Underground - Scoping Level Studies**

A Scoping Study has been completed on the Starlight underground gold lodes. A mining inventory was estimated using a minable shape stope optimiser, with ranges of mining inventories generated by changing the cut-off grade (COG). The potential mining inventory is 540Kt at an average head grade of 5.0g/t, with an estimated 87Koz of presented gold, before a process recovery is applied.

This inventory is based on a 3.0g/t COG (cut-off grade) and open stoping methods. Approximately half this inventory was derived from Indicated Mineral resources. A pro-forma indicative mine design and schedule has been completed over 27 months, based on 25kt per month by month seven.

Further development of the Starlight group of resources is limited by a lack of deep drilling. Drilling data has support to depths 200-250m below the current pit floor, thus resource modelling is constrained by a lack of deeper drilling data. The Starlight lodes are open at depth, and the deposit geology and structure is well understood. A full digital data set of stopes, drilling and assays has been maintained since underground mining ceased around 2001.

Further study work is anticipated in 2014 to develop the resource further and integrate Starlight production into a larger project production schedule. Project synergies in terms of project capex and fixed costs are likely to improve the underground NPV. Starlight would contribute to the production schedule once its open pit component, named Daylight, has been depleted.

#### **Ongoing Work**

Further study work is envisaged given the material change to open pit tonnage movement and an increased timeline to the mining metrics.

These have changed from an approximate 90Mt total in the 2012 mine plan to approximately ~105Mt movement in this optimisation. A further ~14Mt of mining from the Peak Hill project would expand the scope of any mining tender.

As energy costs (power) are also a significant component of process operating costs, the Company will investigate the installation of compressed natural gas and/ or LNG to achieve lower energy costs across both projects. These two project factors are the largest two variables affecting project NPV, other than gold price and currency exchange rates.

Design work for the Daylight pit has been commissioned, as has work to allow for Reserve declaration to JORC 2012. Further twin drillhole drilling at Daylight and metallurgical and geotechnical drilling at Callies, Yarlarweelor and Daylight have commenced.

For further information, contact:

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#### **Competent Person's Statement**

The information released in this announcement that relate to exploration results and geo-metallurgy is reported in accordance with the requirements of the 2012 JORC Code. The Company's mineral resources are currently reported as defined by the 2004 JORC Code.

The information that relates to **Exploration Results and Geometallurgy** is based on information compiled by Mr Albert Thamm, who is a Fellow and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr Thamm is Director of Resource and Investment NL and has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code of Reporting of Mineral Resources and Ore Reserves. Mr Thamm consented to the inclusion in the release dated 6 November 2013 on the matters based on information in the form and context in which it appears.

The information relates to **Mineral Resources** is based on information compiled by Mr Albert Thamm, who is a Fellow and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr Thamm is Director of Resource and Investment NL and has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code of Reporting of Mineral Resources and Ore Reserves. Mr Thamm consented to the inclusion in the release dated 6 November 2013 on the matters based on information in the form and context in which it appears.

#### Forward-Looking Statements

This ASX release has been prepared by Resource and Investment NL. This document contains background information about Resource and Investment NL and its related entities current at the date of this announcement. This is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained in this announcement. This announcement is for information purposes only. Neither this document nor the information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sale of shares in any jurisdiction.

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The information relating to project targets should not be considered as an estimate of Ore Reserves. Hence the term Reserve(s) has not been used in this context.

Any forward-looking statements in this ASX release speak only at the date of issue of this announcement. Subject to any continuing obligations under applicable law and ASX Listing Rules, Resource and Investment NL does not undertake any obligation to update or revise any information or any of the forward-looking statements in this document or any changes in events, conditions or circumstances on which any such forward-looking statement is based.

Appendix 1 - Grosvenor Project Resources - JORC 2004

Project	Cut- off (g/t)	Tonnes (kt)	Grade (Au g/t)	Tonnes (kt)	Grade (Au g/t)	Tonnes (kt)	Grade (Au g/t)	Tonnes (kt)	Grade (Au g/t)	Au Troy Ounces
	-	Meas	ured	Indica	ted	Inferi	red		Total	
Yarlarweelor	0.5			5,498	1.6	1,511	1.6	7,009	1.6	360,500
Starlight	1			1,558	3	924	3.4	2,482	3.2	252,500
Starlight Hanging Wall	1			145	4.3	503	2.9	648	3.2	67,500
Twilight	1			1,138	2.7	316	2.6	1,454	2.7	124,700
Ricks	1			232	1.9	63	2.1	295	2.0	18,800
Midnight	1			229	2.3	124	2.7	353	2.4	27,400
Dougies	1			99	3.1	123	2.9	222	3.0	21,500
Eldorado	0.6					386	1.4	386	1.4	17,300
Toms & Sams	1	42	1.64	1,031	1.53	272	1.66	1,345	1.6	67,400
Horseshoe, Cassidy & Pod	0.5			1,578	2.09	792	2.3	2,370	2.2	164,600
Nathans	0.75					1,081	1.9	1,081	1.9	66,900
Callies North	0.5			2,326	1.43	1,527	1.10	3,854	1.3	161,000
Labouchere	1			278	1.7	534	1.8	812	1.7	45,400
Regent	0.6					328	1.4	328	1.4	14,300
TOTAL		42		13,834		8,484		22,361	2.0	1,409,800

## Peak Hill Project Resources at 0.8 g/t cut off - JORC 2004

Hai	rmony, Enigma, Durack and	Main Pit-Five Ways		
Classification	Material type	Tonnes (kt)	Au (g/t)	Au Ounces
	Oxide	1,270	1.2	50,000
INDICATED	Transitional	2,940	1.4	128,000
	Fresh	4,960	1.6	252,000
TOTAL INDICATED		9,170	1.5	430,000
	Oxide	160	1	5,000
INFERRED	Transitional	80	1.1	3,000
	Fresh	1,510	1.6	76,000
TOTAL INFERRED		1,750	1.5	84,000
SUBTOTAL		10,920	1.5	514,000
Jub	ilee Deposit Mineral Resourc	es at 1.0 g/t cut-of	f	
Classification	Material	Tonnes (kt)	Au (g/t)	Au Ounces
INDICATED		100	1.95	6,300
INFERRED		505	2.49	40,500
SUBTOTAL		605	2.41	46,800
Combined 6	Blobal Mineral Resources Estim	ated for the Peak Hill	Project	
Classification		Tonnes (kt)	Au (g/t)	Au Ounces
INDICATED		9,270	1.5	436,000
INFERRED		2,255	1.7	125,000
TOTAL		11,525	1.5	561,000

Note: Grade, tonnage and ounces have been rounded and may result in computational discrepancies the above tables.

## Appendix 2 - Independent Consultants

The following consultants have provided services on a best endeavours basis to these studies reported on in this release as Independent Consultants on standard commercial confidential terms.

Consultants	Inputs provided
Orelogy Pty Ltd	Pit optimisations.
Independent Metallurgical Operations	Metallurgical testwork and assay. Processing recovery factors. Capital estimates.
RMDSTEM	Decision and Risk analysis. Cost and revenue benchmarking.
Lawrence Consultants Pty Ltd	Cost and revenue factors, benchmarking.
New Holland Capital Pty Ltd	Project financial modelling, cost benchmarking.
Umwelt Pty Ltd	Approvals advice, regulatory submissions.