

Sunrise Battery Materials Complex

Mines & Wines Conference - Orange 13 May 2022





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01

Company Name Change





Company Name Change

- > Sunrise Energy Metals Limited (SEM)
 - Following shareholder approval in March, Clean TeQ Holdings Limited (ASX:CLQ) has now been renamed SUNRISE ENERGY METALS LIMITED
 - Trading commenced on 12th April 2021 on the ASX with the ticker "SRL"
 - A number of other subsidiary companies within the group have also had their names changed including Clean TeQ Sunrise Pty Ltd to SRL Ops Pty Ltd
 - The water business has demerged into a separate ASX listed company in Q2 2021.
- A 1 for 10 share consolidation has also recently been implemented









Sunrise Battery Materials Complex – Project Update







Sunrise Location





Site Layout





Project Execution Plan

- > Project Execution Plan (PEP) completed Q3 2020
- > Project construction duration of 3 years at a cost of \$2.368 billion
- > PEP identified an Engineering, Procurement and Construction Management (EPCM) project delivery model as the preferred option to deliver the Sunrise project
- > Approximately 1900 jobs at the peak of construction
- > Construction will consist of a combination of local roles plus FIFO roles
- > Approximately 350 operational roles once construction completed
- > Operational strategy for majority to be residential roles
- > Currently seeking finance to achieve a Final Investment Decision and commence construction activities
- > Significant community benefit through taxes, VPA, employment, wages etc.



Non-process infrastructure

- > Approximately \$200M in upgrades to infrastructure outside of the mining lease
- > 65km of Water pipeline & associated pumping infrastructure
- > In excess of 100 km of High Voltage powerlines
- > Approximately 36 km of Road Upgrades across the region & 11 Intersection upgrades
- > 35 km of Rail Upgrades
- > Establish oversized transport route from Pt Pirie (SA) to Fifield
- > Rail siding North of Trundle
- > Currently working closely with NSW Government on fast tracking the planning for NPI upgrades such as the oversized transport route



Recent Project Milestones

- Major Project Status awarded to SEM from the Federal Government (Dec 21) providing fast tracked approvals processes
- > Conditional letter of support for debt finance facility of \$400M announced from Export Finance Australia (Jan 22)
- > Project Modification (Mod 7) approved by DPIE (Jan 22)
- > 100% renewable power commitment Jan 2021
- > Testwork underway to include capability for lithium battery recycling and battery "precursor" production







How can I get involved ?

- > Tenders & EOI's will be made available through ICN Gateway
- > Limited contractor construction opportunities until project is funded
- > Condobolin "Open Offices" held 2nd & 4th Tuesday 9-12
- > Parkes "Open Offices" held 2nd & 4th Thursday 9-12
- > Check our website: <u>www.sunriseem.com</u>







Sunrise – Geology







REGIONAL GEOLOGY -FIFIELD-NYNGAN BELT

- 1. Sunrise Project located in the Fifield-Nyngan Belt
- 2. Multiple Alaskan-style and Alpine intrusions within Ordovician
- 3. Girilambone Group Metasediments
- 4. Bound on the east by Devonian-Ordovician rocks
- 5. Bound on the west by Cobar Super basin



ALCHEMY RESOURCES. WESTLYN PROJECT. Alpine-style structurally emplaced with Ni-Co residual resource.

SCANDIUM INTERNATIONAL MINING. GILGAI PROJECT. Alaskan style complex. Sc resource and ML. Pt occurrences

SCANDIUM INTERNATION MINING AND HELIX RESOURCES. HONEYBUGLE COMPLEX. Ni-Co laterites and platinum occurrences. Sc resource potential.

HELIX RESOURCES. COLERINA-HOLMVILLE PROJECT. Alpine-style structurally emplaced with Ni-Co residual resource.

SUNRISE ENERGY METALS. HYLEA AND BULBODNEY CREEK. Alaskan-style complex. Co-Sc-Ni laterites and platinum occurrences. Tigers Creek Co-Sc-Ni resource

SUNRISE ENERGY METALS. TRESYLVA. Alaskan-style complex. Platinum occurrences. Also other smaller targets.

PLATINA RESOURCES. OWENDALE PROJECT. Alaskan-style complex. Co-Sc-Ni laterites and platinum occurrences. Sc-Co Resource and MLA. Hard rock Pt.

SUNRISE ENERGY METALS. SUNRISE PROJECT. Alaskan-style complex. Co-Sc-Ni laterites and platinum occurrences. Ni-Co-Sc-Pt Resource and ML. Funding Stage.

RIMFIRE PACIFIC. AVONDALE PROJECT. Alaskan-style complex. Co-Sc-Ni laterites and platinum occurrences

RIMFIRE PACIFIC. KARS. Alaskan-style complex. Platinum occurrences





LOCAL GEOLOGY TOUT INTRUSIVE COMPLEX

- 1. Sunrise project located above the Ordovician Tout Intrusive Complex (TIC)
- 2. Zoned ultramafic-mafic-intermediate-felsic intrusive complex.
- **3.** Dunite, Wehrlite-Olivine Pyroxenite, Pyroxenite, Hornblendite, Gabbro, Diorite, Monzonite, Quartz Syenite.
- 4. Ni-Co-Sc-Pt residual deposits developed over dunite core.
- 5. Sc-Co and Sc residual deposits developed over pyroxenite surrounding dunite core and lobate projections into surrounding TIC
- 6. Zoned, onion skin-like structure with sharp intrusive contacts and zoned from mafic at core to felsic at margins.
- 7. Recent drilling confirms sharp contacts between lithologies.
- 8. TIC has shoshonitic geochemistry. Epidote-Kfeldspar-Magnetite alteration in felsics. Phlogopite-magnetite-serpentinite alteration in mafics.







LOCAL GEOLOGY – RESIDUAL DEPOSIT

- 1. Distinctive laterite-saprolite profile developed over dunite.
- 2. Mass wastage over dunite causes subsidence of residual profile.
- **3.** Pyroxenite margins form ridges and well-developed ferruginous Sc-enriched clay-goethite laterite profile around the margins of the dunite core.
- 4. Paleo channel cuts the middle of the deposit north-south.
- 5. SUNRISE DEPOSIT PROFILE
- AV Alluvium (clay-sand-gravel-siliceous laterite)
- **OVB** Alluvium and low grade material (also magnesite, pisolites, clay, laterite)
- TZ Pisolites and haematite zone. (cemented ferruginous pisolites)
- **GZ** Goethite Laterite Zone. (weathered ferruginous clay-goethite)
- SGZ Siliceous Goethite Laterite Zone (mesh textures and massive silica & goethite)
- **SAP** Saprolite Zone (relic dunite textures with magnesite, silica and goethite)

PROT – Dunite (minor pyroxenite dykes and wehrlite)







SUNRISE RESIDUAL GEOCHEMISTRY

- 1. High Mg, Ca, Si in dunite readily removed through surficial weathering. Protolith serpentine-olivine-clinopyroxene-phlogopite-brucitemagnetite.
- 2. MgO in dunite up to 40%.
- 3. Ni-Co-Sc-Pt residual laterites enriched in Fe, Al, Cr after removal of Mg, Ca, Si. Na.
- 4. Sc-Co residual laterites develop over pyroxenites with removal of Ca, Mg. Protolith clinopyroxene-magnetite-olivine.
- 5. Laterites dominated by a variety of ferruginous minerals and clays. Chromite persists in the residual zone.
- 6. Spectral analysis of drill samples confirms the residual deposit mineralogy in the table below.

Zone	Mineral	Relative Abundance			
	Goethite	Major			
	Hematite	Minor			
Transition zone	Silica	Minor			
	Gibbsite	Minor-Major			
	Kaolinite	Minor-Major			
	Goethite	Dominant			
Goethite zone	Gibbsite	Minor			
	Vermiculite	Minor-Major			
Silicified goethite zone	Goethite	Dominant			
Silicilled goet nite zone	Silica	Dominant			
	Goethite	Minor-Major			
Convolito Tono	Silica	Major			
Saprolite zone	Serpentine	Major			
	Smectite	Major			





NICKEL IN THE SUNRISE DEPOSIT

- 1. Enriched in the residual zone above the dunite. Patchy in pyroxenitewehrlites.
- 2. Average grade for Sunrise measured resource 0.56%.
- 3. Background Ni in serpentinised dunite average around 1500ppm.
- 4. Ni correlates moderately with Fe and Cr in the siliceous laterite zone but weak correlation in the goethite zone.
- 5. Ni Typically enriched in the goethite zone where grades typically range 0.5-1%.
- 6. Lower Ni grades in the siliceous goethite zone. Plan to upgrade to comparable goethite grades through beneficiation (removal of silica).











- 1. Enriched in the residual zone above the dunite and pyroxenite margins.
- 2. Average grade for Sunrise measured resource 0.11%.
- 3. Background Co in serpentinised dunite around 100ppm
- 4. Co correlates strongly with Mn in the goethite and siliceous goethite zones.
- 5. Dark manganiferous goethite carries high Co locally to 0.6% over short intervals.
- 6. Co typically enriched in the siliceous goethite zone due to supergene processes but does not follow similar pattern to Ni-Fe.
- 7. Sunrise Project is a cobalt deposit in its own right.









SCANDIUM IN THE SUNRISE DEPOSIT

- 1. High background Sc in clinopyroxene-rich lithologies including pyroxenites and wehrlite. with 50-100ppm in fresh rock.
- 2. Sc grades in Ni-Co laterite developed above dunite <60ppm
- 3. Sc grades frequently exceed 600ppm above pyroxenites.
- 4. Co also enriched in Sc laterite zones but mechanism for enrichment unknown (but likely due to supergene processes).
- 5. Sunrise has a large Sc resource inventory and additional areas with known high Sc grades.





PGEs IN THE SUNRISE DEPOSIT

- 1. Enrichment of Platinum in the laterite at Sunrise predominantly over dunite.
- 2. Pt grades 0.23 g/t in measures resource. Local high-grade intersections in vertical RC resource drill holes as well as some targeted angled holes (see right).
- **3.** Pt typically shows local enrichment at the base of the siliceous laterite zone but also associated with perceived structural control in the TIC.
- 4. Australia's largest platinum resource with a total resource of 1,100,000 ounces.
- 5. Recent 7 hole diamond drilling program at Phoenix Prospect within ML1770 highlights narrow high Pt grades association with chromite pods and pyroxenite-rhodingite dykes.
- 6. Planned work to investigate possible remobilization of PGEs from dunite into pyroxenites. Poor correlation between Pt and Pd. Patchy copper in pyroxenites.







	Intercepts										
Prospect	Hole	From	То	Interval	Pt ppm	Pd ppm	Rh ppb	lr ppb	Os ppb	Ru ppb	
ML1770	SDD022	124.3	124.6	0.3	9.00	0.08	92	106	16	20	
ML1770	SDD022	254.9	255.2	0.3	1.24	0.01		Not Sampled			
ML1770	SDD022	255.9	256.5	0.6	129	1.23	1785	4000	888	277	
ML1770	SDD023	156.0	157.0	1.0	3.25	0.03	16	11	2	3	
ML1770	SDD023	158.0	159.0	1.0	2.44	0.06	24	16	1	3	
ML1770	SDD023	160.0	160.5	0.5	1.98	0.05	32	20	5	4	
ML1770	SDD023	256.0	257.0	1.0	3.25	0.03	17	12	1	3	

PHOENIX PLATINUM DIAMOND DRILLING ML1770

- Diamond drilling targeted high Pt grades in RC drill holes within the Sunrise resource.
- 2. Best intersection of 129 g/t platinum over 0.6m interval in chromite lens or pod.
- 3. Anomalous Palladium, Rhodium, Iridium, Osmium and Ruthenium in assays.
- 4. Platinum also found to be associated with coarse clinopyroxene - rhodingite dykes
 - Micro XRF detects coarse grains of platinum and PGEs associated with chromite.
- Interpreted to be amenable to gravity concentration. See imagery for interval SDD02 255.9-256.5m below 6.
- 7. Research on controls to mineralization ongoing.

			Intercept	ts		
PROSPECT	Hole	From (m)	To (m)	Interval (m)	Pt ppm	Association
Phoenix ML1770	SDD025	90	91.4	1.4	1.57	dunite
Phoenix ML1770	SDD025	132.45	132.87	0.42	1.28	dunite
Phoenix ML1770	SDD025	230	231	1	1.85	chromite vein
Phoenix ML1770	SDD026	101.57	102.53	0.96	1.05	pyroxenite dykes
Phoenix ML1770	SDD026	105.65	106.42	0.77	1.02	pyroxenite dykes
Phoenix ML1770	SDD026	109.07	109.5	0.43	2.19	pyroxenite dykes
Phoenix ML1770	SDD026	342.4	342.7	0.3	1.35	chromite vein
Phoenix ML1770	SDD026	392.7	393.45	0.75	3.29	pyroxenite dykes
Phoenix ML1770	SDD026	393.45	394	0.55	1.58	pyroxenite dykes
Phoenix ML1770	SDD027	148.5	149.35	0.85	1.24	pyroxenite dykes
Details of signific	ant platinui	m intercepts	from the	Phase 2 Phoenix	diamond	drilling program.







Hole SDD022 Sample 40094 - 255.9-256.5m 0.6m 129gt Pt & 1.23 Pd -Elongated pinch-and-swell shaped chromite pods



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5.





sunrise

GEOPHYSICS – SUB AUDIO MAGNETICS

- 1. Sub Audi Magnetics gives allows for interpretation of structure within TIC
- 2. TIC is structurally complex with multiple intrusive phases.
- 3. Evidence of late pulses of mafic magmas including dunite.
- 4. Major faulting through the TIC with major NNW fault
- 5. Evidence of exhumation and erosion of its eastern half
- 6. Western half may contain dunite intrusions below pyroxenite and more felsic rocks.



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SUNRISE Ni-Co-Sc RESOURCE

MEASURED, INDICATED AND INFERRED RESOURCE Ni-Co. -Over 1500 drill holes -High % of measured and indicated resources

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Classification Category	Quantity (Mt)	Nickel Equivalent Grade (%)	Nickel Grade (%)	Cobalt Grade (%)	Scandium (ppm)	Platinum (g/t)	Nickel Equivalent Metal (t)	Nickel Metal (t)	Cobalt Metal (t)	Scandium Metal (t)	Scandium Oxide (t)	Platinum (oz)
Measured	69	1.04	0.65	0.11	61	0.23	720,000	450,000	73,000	4,200	6,400	500,000
Indicated	89	0.81	0.49	0.09	79	0.19	720,000	440,000	76,000	7,000	11,000	540,000
Measured & Indicated	160	0.91	0.56	0.09	71	0.21	1,400,000	890,000	150,000	11,000	17,000	1,000,000
Inferred	17	0.64	0.26	0.10	289	0.15	110,000	45,000	18,000	5,000	7,700	84,000
Total	180	0.88	0.53	0.10	92	0.20	1,600,000	940,000	170,000	16,000	25,000	1,100,000

CLASS

UNCLASSIFIED MEASURED INDICATED INFERRED

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SUNRISE NI-Co-Sc RESOURCE AREA SUPERIMPOSED ON SYDNEY CBD

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Regional Exploration







EL4573 SUNRISE EAST DISCOVERY

- 1. Diamond drilling targets magnetic anomaly to the east of the TIC. New Alaskan-style intrusion discovered. Tentatively named TIC East.
- 2. Three diamond holes intersect laterite, ultramafics and various intermediate to felsic lithologies. Age dating in progress
- 3. Cobalt grades >1000ppm in laterite over extended intervals with Sc and low level Pt.
- 4. Wide intervals of elevated copper associated with propylitic alterationreddening, monzonite and syenite dykes. Alteration studies commenced.
- 5. Strong wide intervals of silica-carbonate-sulphide alteration intersected in drilling and mapped on the surface. Anomalous Ag-As-Sb-Pb and low-level Au.
- 6. Soil sampling, mapping, rock chip sampling and RC drilling testing for extent of Co laterites and areas of gold-bearing alteration.





SUNRISE REGIONAL EXPLORATION FOCUS

- 1. Identifying and delineating further Ni-Co-Sc and Pt resources within the Hylea, Sunrise East, Sunrise North and Burra Creek Projects.
- 2. Delineate high quality limestone deposits within our Group 2 tenements including Gleninga, Boona Gap and Ezylime.
- 3. Ordovician porphyry Cu-Au, Devonian polymetallic skarns and REE deposits within the Minore Project Els.
- 4. Additional gold, tin, porphyry copper and granite-related systems within Sunrise North, Sunrise East and Burra Creek Projects.
- 5. Exploration of Alaskan-style intrusion at Nyngan Project.















Questions?







Thank you

