Sprott | Equity Research

Palladium One (PDM CN)

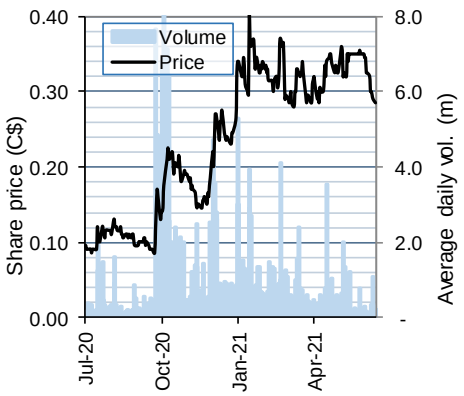
Initiation: SCPe 3-5Moz pittable PGMs in Finland, Ni options

RECOMMENDATION: **BUY** *TARGET:* **C$0.70/sh** *RISK RATING:* **HIGH**

SHARE DATA	
Shares (basic, FD, FF FD)	248 / 286 / 476
Share price (C$/sh)	C$0.27/sh
52-week high/low	C$0.4 / C$0.09
Market cap (C$m)	67
Pro-forma cash	20.9
1.0xNAV7% @ US$2000/oz (C$m)*	807
1.0xNAV7% FD (C$/sh)*	2.82
Project P/NAV today (x, FD)	0.10x
Average daily value (C$000, 3M)	160

FINANCIALS	CY25E	CY26E	CY27E
PdEq production (000oz)	143	166	166
Revenue (C$m)	286	332	332
AISC (US$/oz)	769	769	769
Income (C$m)	8.8	37.7	43.1
EPS (C$)	1.9	7.9	9.1
PER (x)	14.5x	3.4x	3.0x
CFPS (C$)	21	32	33
FCF yield (%)	77%	118%	123%
EBITDA (C$m)	152	183	183
EV/EBITDA (x)	1.8x	1.3x	1.1x

TIME VALUE:	2Q22	2Q23	2Q24
1xNAV7% FF FD (C$m)	643	698	899
1xNAV7% FF FD (C$/sh^)	1.62	1.76	1.89
TIME VALUE:	**2Q22**	**2Q23**	**2Q24**
1xNAV5% FF FD (C$m)	779	828	1,016
1xNAV5% FF FD (C$/sh^)	1.96	2.08	2.19



*Source: Fidessa; *diluted for options only ^plus mine build*

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Finland monster palladium discovery & high-grade Ontario nickel

Palladium One is a TSX listed explorer whose flagship LK asset in Finland hosts ~1.8Moz PdEq pittable PGM-Ni-Cu, with SCPe potential for 3-5Moz. The asset benefits from access to cheap power, water, roads, skilled labour and 20% tax. The company has also made a recent high-grade nickel sulphide discovery in Ontario, Tyko, with recent hits of **3.8m @ 8% NiEq** (SCP prices) at surface.

3.6Moz PdEq* (5.2Moz AuEq^) de-risked already by our rough maths

Kaukua MRE of **955Moz @ 1.4g/t PdEq** (1.2Moz @ 1.8g/t AuEq) extends over ~1km, while the Haukiaho satellite 12km south has a non-compliant 851koz @ 1.1g/t PdEq (1.0Moz @ 1.4g/t AuEq) for 1.8Moz PdEq (~2Moz AuEq). The step change comes from Kaukua South, where we estimate 1.6Moz @ 1.1g/t PdEq (1.8Moz @ 1.3g/t AuEq) for a global **SCPe 3.4Moz PdEq**. This excludes substantial undrilled strike, making LK a rare large PGM deposit in a Tier 1 jurisdiction not owned by a producer. Cardinal Resources' 5.1Moz @ 1.13g/t Au reserve in Ghana sold for A$606m with 6% royalty, 32% tax, 10% minority and ultra-fine-grind. We think a higher-grade, lower-tax, precious / battery metal asset warrants a premium to that.

The thesis: >5Moz PdEq potential with extensions and satellites

Accounting for gentle dip, and deeper pits, Kaukua South alone could lift to 3.4Moz PdEq (4.7Moz AuEq) with Pd-Ni-Cu-Pt-Au splits of 53-17-14-10-6. The asset is open for expansion along strike with only 3km of the broader 5.5km IP target drilled. Other satellites include Murtolampi ~2km NE with massive near-surface pit potential highlighted by **79m @ 2.9g/t PdEq** (3.2g/t AuEq).

Ontario nickel: first discovery this cycle, and only just started

Drilling conductor targets at Tyko has *averaged* 3m @ 6% Ni within 150m of surface, over 350m strike. We see ~500kt drilled already for 25kt Ni metal @ ~5% Ni, with ~230t Ni/vm, and potential to grow to 1.2Mt. For reference, Mincor's (MCR AU, A$445m mkt cap) Cassini discovery hosts 40kt Ni @ 3.3% to ~600m below surface (~60t Ni/vm), accounting for 60% of reserves. Ni sulphide deposits are in demand given their lower CO_2/t generation compared to Ni laterites, and preferred source for EV's, meaning investors in Palladium One gain exposure to two thematically hot metals for the price of one.

Initiate coverage with BUY rating and C$0.70/sh PT

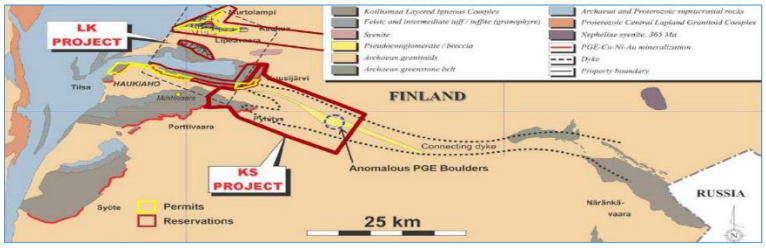
We model a 4.5Mtpa open pit from LK for 143koz pa PdEq (155koz pa AuEq) at US$855/oz PdEq AISC, driving a $NPV_{7\%-2000}$ of C$724m ungeared from build start. Adding cash, options / warrants, C$27m for resources outside inventory, $13m for Murtolampi satellite and nominal $10m for Tyko, we initiate with a BUY rating and 0.25x $NPV_{7\%-2000}$ C$0.70/sh PT. The funded 23km drilling in Finland will support a maiden Kaukua South MRE in 1H22. Combined with a scarcity premium on size and jurisdiction, the stock's 0.1xNAV now, and 1xNAV FF FD of ~C$2.05/sh in production, makes this a conviction name for us.

**All PdEq in this report at SCP LT (US$2k/oz Pd, $1.1k Pt, $1.85k Au, $8.00/lb Ni, $4.00/lb Cu)*
^AuEq in this report spot @ June 23 $2.60k Pd, $1.08k Pt, $1.78k Au, $8.9/lb Ni, $4.65/lb Cu)

FINLAND / LK: Multi-million pittable PGM ounces in tier 1 jurisdiction with year-round drilling

Palladium One's flagship LK project in Finland lies in a prolific belt, with several producers and three smelters nearby. The asset hosts a compliant pit-constrained **955koz @ 1.36g/t PdEq*** (1.25Moz @ 1.77g/t AuEq @ spot^) at Kaukua, surrounded by multiple satellite targets including a *non 43-101* historic **851koz @ 1.14g/t PdEq** (1.0Moz @ 1.4g/t AuEq) at Haukiaho 12km to the south. The real prize is Kaukua South, 500m from the main resource, drill highlights of **62m @ 1.5g/t PdEq** (1.9g/t AuEq) extending over a core 1.7km strike, within an even longer >4.0km IP anomaly, leading us to estimate a further 1.5-2Moz PdEq (2.2-2.9Moz AuEq) there ahead of a maiden MRE in 1H22. If achieved, including smaller satellites to the north, total potential lifts to 3.25-3.75Moz PdEq (~5Moz AuEq). The company also owns **Tyko**, near Thunder Bay, Ontario, where a ~3m horizon has been drilled over 350m strike with an *average* grade of 6% nickel across 15 holes, open along strike and down dip. This season's $11.5m budget funds 27,000m of drilling (23,000 in Finland, 4,000 in Canada), concurrent geophysics and metallurgy.

Figure 1. Palladium One's Finland project portfolio (LK & KS projects) and Kaukua 3Q19 MRE @ SCP PdEq



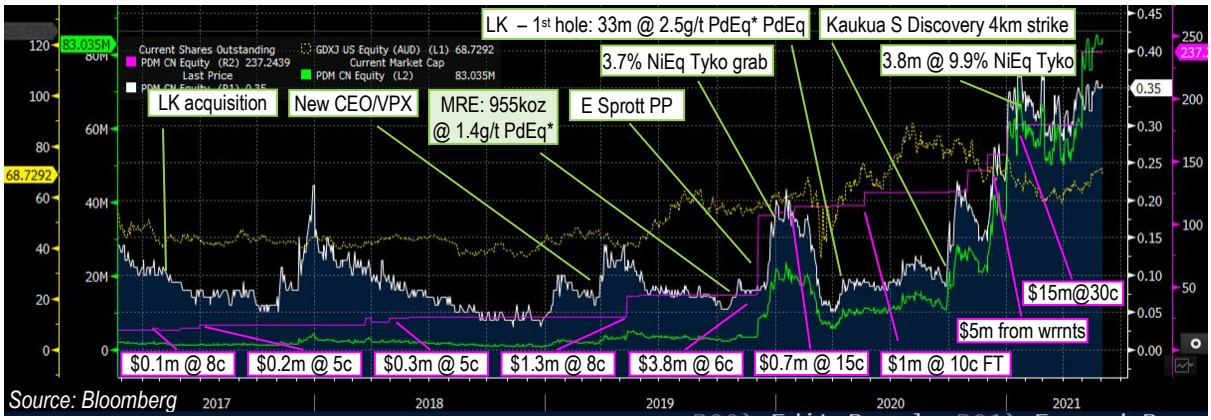
LK Project (100%)	Tonnes (Mt)	Grade (g/t PdEq)	Ounces (000oz PdEq)
Kaukua Main M&I	11.0	1.49	528
Kaukua Main Inferred	10.9	1.22	427
Haukiaho historic inferred	23.2	1.14	851
Total	**45**	**1.25**	**1805**

Source: Palladium one, SCP, 3Q19 Kaukua MRE and 2013 Haukiaho non 43-101 resource at SCP prices

Two new discoveries timed perfectly into the cycle

Prior management focused on Canadian greenfield exploration, pivoting to Finland in 1Q18 via an acquisition from Finore Mining. Finland has a rich geological database, but has only been open to exploration for ~20Y, and the LK project had seen limited exploration, having changed hands between Vancouver juniors that struggled to finance during weak markets. What's different today is (i) a **new team as of 2019**, led by CEO Derrick Weyrauch and VPX Neil Pettigrew who has 20+ years of Cu-Ni-PGM exploration experience; (ii) **higher Pd prices / scarcity value** and (iii) **two new discoveries.** The 1Moz PdEq 3Q19 MRE kicked things off but was based on historic drilling, which was replicated in the first hole in 3Q20. However, a maiden IP survey extended Kaukua South from 600m to 4km strike in 3Q20, with drilling since then returning many stellar holes for the first (strike extension) discovery. In parallel, 1Q20 Tyko grab samples pre-dated 1Q21 maiden drilling of a remarkable **3.8m @ 8% NiEq** and **4.2m @ 7% NiEq** at surface at Tyko. In fact, only two weeks ago did assays come in for the whole 350m geophysical anomaly (limit of geophysics, not anomaly) with a phenomenal *average* of 3.0m @ 6.1% Ni across 15 holes to date.

Figure 2. Corporate evolution of Palladium One against share price, shares out and market cap

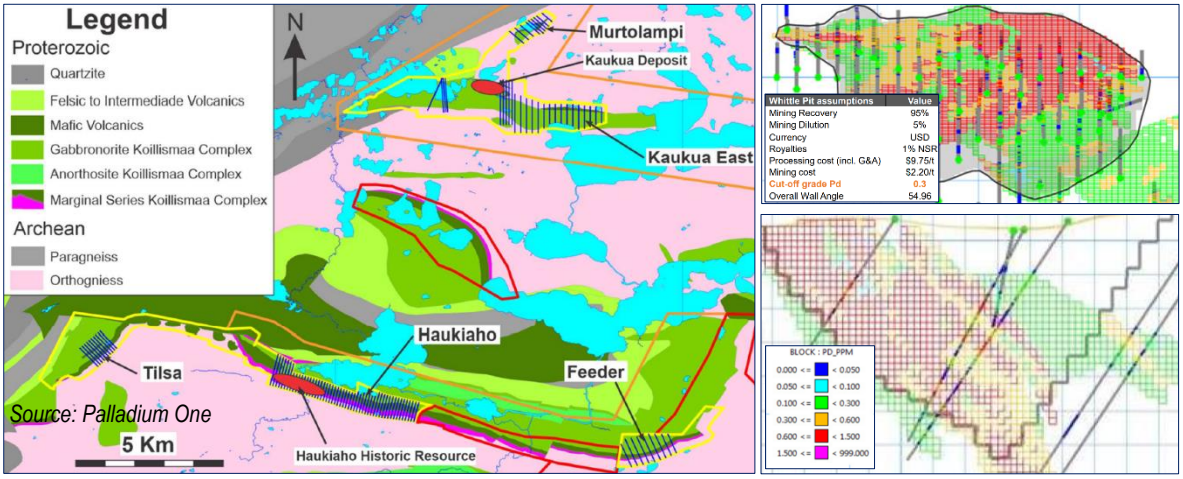


**All PdEq in this report at SCP LT (US$2k/oz Pd, $1.1k Pt, $1.85k Au, $8.00/lb Ni, $4.00/lb Cu)*
^AuEq in this report spot @ June 23 $2.60k Pd, $1.08k Pt, $1.78k Au, $8.9/lb Ni, $4.65/lb Cu)

Kaukua main pit and Haukiaho existing resources: 1.8Moz PdEq (2.3Moz @ 1.6g/t AuEq) already in the bag

The Kaukua MRE is already large given the pit-constrained **955koz @ 1.36g/t PdEq** (1.25Moz @ 1.77g/t AuEq, Pd-Ni-Cu-Pt-Au 53-17-14-10-6) with ~55% M&I. Whilst non-compliant, the Haukiaho satellite 12km south adds **851koz @ 1.14g/t** PdEq (1.04Moz @ 1.4g/t AuEq) of inferred resource. Historic drilling there was widely spaced and resources loosely constrained, hence 2,000m infill completed in 1H21. Results to date give us confidence that a 2H21 43-101 should see only modest changes, with potential for a grade increase by infilling higher grade areas. Cumulatively, this already drives a **global 1.8Moz @ 1.18g/t PdEq (2.3Moz @ 1.6g/t AuEq),** making this one of the largest undeveloped primary palladium deposits globally. However, this is the tip of the iceberg as it excludes Murtolampi to the north and the 'main game' of Kaukua South**,** the engine rooms of growth. Year round drilling via road access means the company can drill cheaply, and quickly, a key pillar of our investment thesis compared to peers dependent on heli-supported and/or seasonal drilling for either access or permitting reasons.

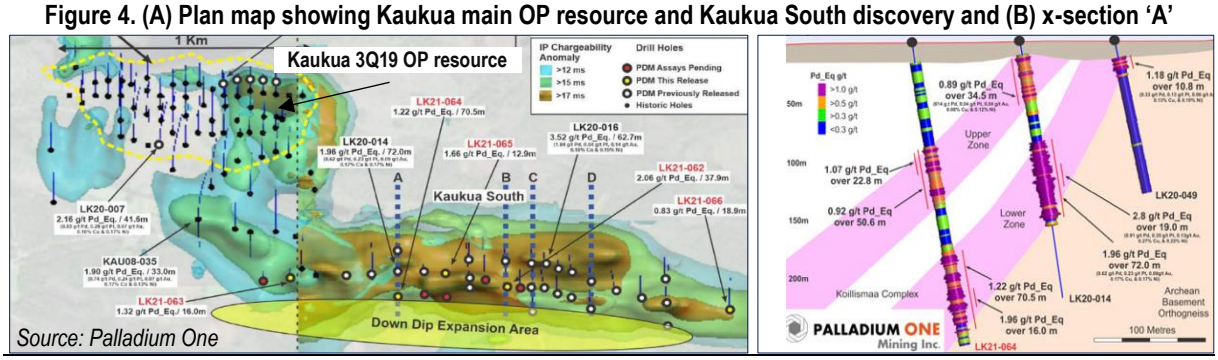
Figure 3. LK project map showing Kaukua and satellites (B) Kaukua pit constrained resource plan / x-sections



Kaukua South adds SCPe 1.6Moz at low strip; running total 3.4Moz PdEq (4.9Moz AuEq at spot)

We think Kaukua South lifts an existing big discovery to very big, and is shaping up to dwarf the main Kaukua deposit. A 2008 intercept of **33m @ 1.5g/t PdEq** (2.0g/t AuEq) wasn't followed up as the geology was poorly understood. Palladium One's IP survey flagged the area as a 500m fault offset of the same ore body at Kaukua, and extended the strike to 4km, of which >3.5km had never been drill tested. As such, last year's discovery hole LK20-006, a 180m step out into this new Kaukua South extension returned **167m @ 0.8g/t PdEq** (1.0g/t AuEq) near surface including **63m @ 1.5g/t PdEq** (1.9g/t AuEq) was game-changing not just on strike, but being wider and higher grade than the historic drilling. Subsequent step outs hit nearly identical **72m @ 1.5g/t PdEq** (1.9g/t AuEq) within **146m @ 1.0g/t PdEq** (1.2g/t AuEq) 100m further east, growing the larger higher-grade core. Thereafter, >45 holes have confirmed continuity of open pit grades and widths in two subparallel zones: a continuous Lower Zone and more thick lower grade Upper Zone located in the hanging wall (Figure 4) over 2km strike. This year's Phase 2 drilling sees 17,500m (>55% complete) ahead of a maiden resource in 1H22, which we estimate overleaf already stands at **1.6Moz @ 1.1g/t PdEq** (2.3Moz @ 1.6g/t AuEq) from just the lower zone, and arguably up to 20% above this accounting for the dip of the zone. The Lower Zone will drive most of the NPV, but bulk hits of 51m @ 0.6g/t PdEq (0.8g/t AuEq) in the Upper Zone should at least break even, turning waste into not-waste to lower the strip and drive pits deeper.

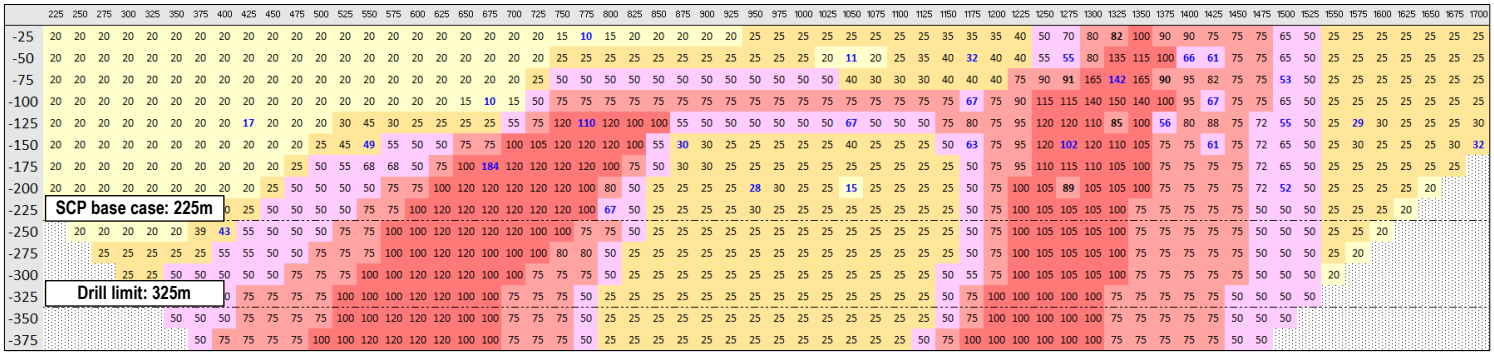
Figure 4. (A) Plan map showing Kaukua main OP resource and Kaukua South discovery and (B) x-section 'A'



SCPe 1.6Moz PdEq at Kaukua South could be light by 20% already

Using our gram-meter long section (Figure 5A) and PdEq grades, the average ~41m composite drill thickness implies a 1.1g/t PdEq (1.3g/t AuEq). Fixing a 50% gross margin at US$1,500/oz Pd (~half spot) implies a maximum strip of ~3.8:1 at 1.3g/t PdEq, which would pull the pit to 225m deep, to which we estimate a **SCPe Base Case 1.6Moz @ 1.1g/t PdEq** (2.3Moz @ 1.6g/t AuEq) over 1.7km strike. Firstly, the Lower Zone (turning waste into break-even) should lower the strip, and the core is higher grade, both of which could pull the pit deeper outside the footwall mega-clast 'gap'; we see **2.3Moz PdEq** (3.4Moz AuEq) to 325m. Next, the deposit dips ~55 degrees, so 100m vertical is ~120m down-plunge, implying +20%, which could lift Kaukua South to 2.8Moz PdEq (4.0Moz AuEq) with drilling, metallurgical work on lower grades and trade-offs on a larger mill.

Figure 5. SCPe Kaukua South long-section of composite (all down-hole intersections) and SCPe resource estimate



Kaukua South Lower	SCPe
25x25m blocks to 225m (#)	590
SG incl.	2.9
Average grams.meters	46
Pd Eq koz <225m	**1,582**
Implied grade at 40m	*1.11*
Implied tonnes	*44.4*

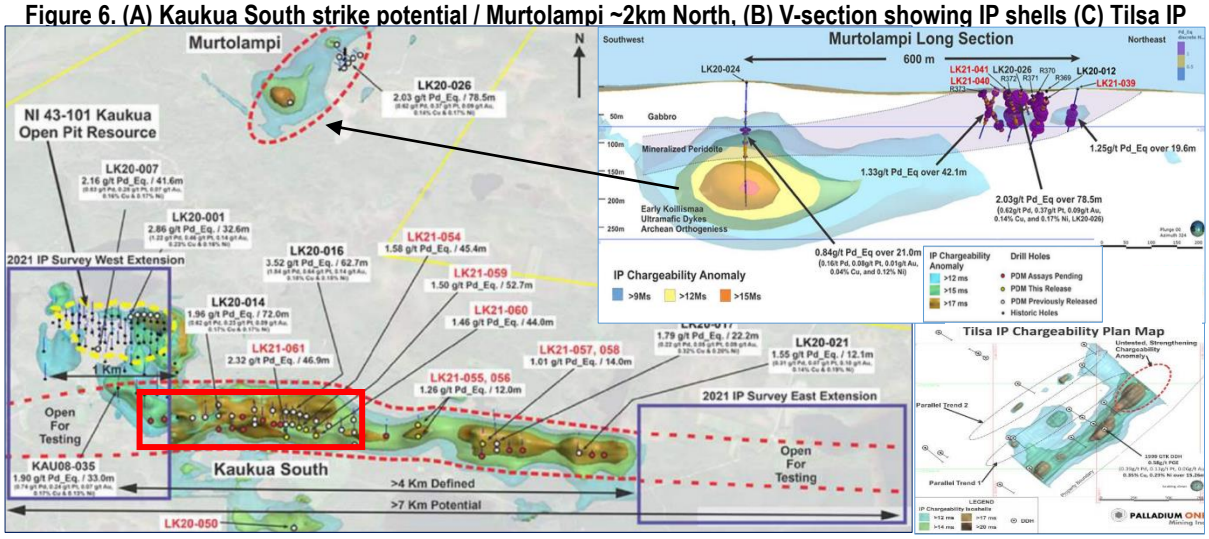
MAX STRIP @ 50% MARGIN @ US$1,500/oz	
Grade (g/t PdEq)	**1.28**
Gross NSR (US$/t)	52.3
Maximum costs (US$/t)	26.2
Non-mining cost (US$/t)	14.05
Mining cost (US$/t ROM)	12.1
Strip (x)	3.84
Ore body width (m)	41
Max pit depth (x)	**225**

Source: Palladium One, SCP, based on 85% recovery, 50% gross margin, US$10/t processing, US$2.50/t mining, 2% royalty

Northern satellite Murtolampi adds SCPe +200koz for 3.6Moz PdEq (5.2Moz AuEq), wide open along strike

Murtolampi sites ~2km north of Kaukua – it is shorter strike at ~200m, but drill highlights of 79m @ 2.6g/t PdEq (3.3g/t AuEq) and 64m @ 1.0g/t PdEq (1.3g/t AuEq) point to useful ounces there, which we nominally estimate at 200koz PdEq. Interestingly, a deeper hole hit **21m @ 0.6g/t PdEq** (0.7g/t AuEq) in the core of a large IP anomaly outlined over ~600m strike. Other more speculative upside comes from (i) Tilsa, a potential Haukiaho offset 6km to the west outlined by IP / Mag and historic **15m @ 1.9g/t PdEq** (2g/t AuEq), and (ii) Kaukua South strike extensions to the east / west and potentially connecting to the main Kaukua resource pit (Figure 6).

Figure 6. (A) Kaukua South strike potential / Murtolampi ~2km North, (B) V-section showing IP shells (C) Tilsa IP

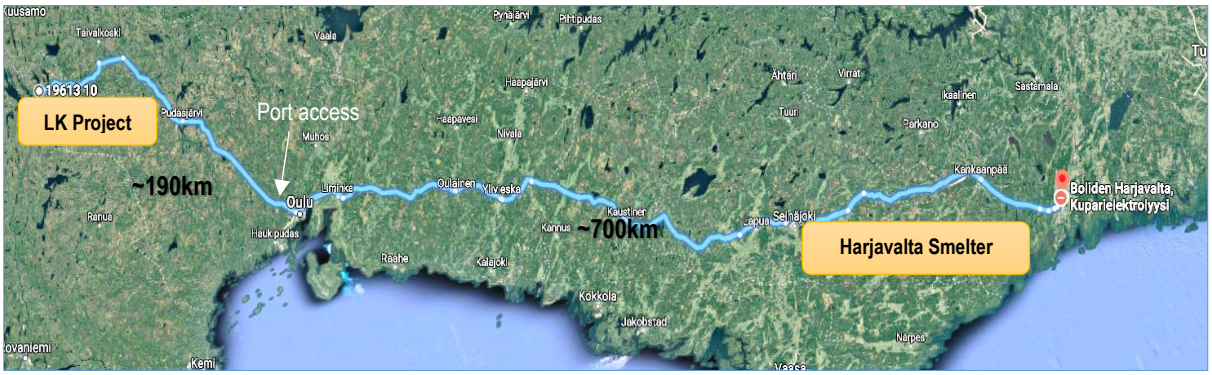


Source: Palladium One

Low shipping costs potential with domestic Finland smelter access, bulk mining and low MgO concentrate

Preliminary metallurgical studies were primarily on saleable con by bulk floatation, with final concentrate grades of 11.4% Cu, 4.5% Ni, 36.3 g/t Pd, 4.6 g/t Au and 7.8 g/t Pt, while some individual unoptimized tests achieved Cu + Ni concentrate grades at 16-17%. The opportunity is to improve this via more focused metallurgical work to distinguish upper and lower zone feeds, as well as optimizing the cleaner and rougher phases to improve metal loss and recoveries. Key here is the clean concentrate, and the low <4% MgO content to allow blending with lower quality concentrate that may otherwise be difficult to bring to account (higher MgO = higher temperature melt = higher energy cost + greater refractory lining degradation). This should bode well to avoid smelter penalties and thus higher payabilities. Logistically, concentrates from Kaukua are truckable to Boliden's Harjavalta smelter (700km) but also to port only 190km away for offshore smelters (Figure 7). For now, we model 85% recovery (50% for nickel silicates component) and a conservative 75% payability based on low MgO and low domestic transport costs, leaving room for further optimizations, where we certainly expect an improvement.

Figure 7. LK road access to Boliden's Harjavalta smelter / Oulu port

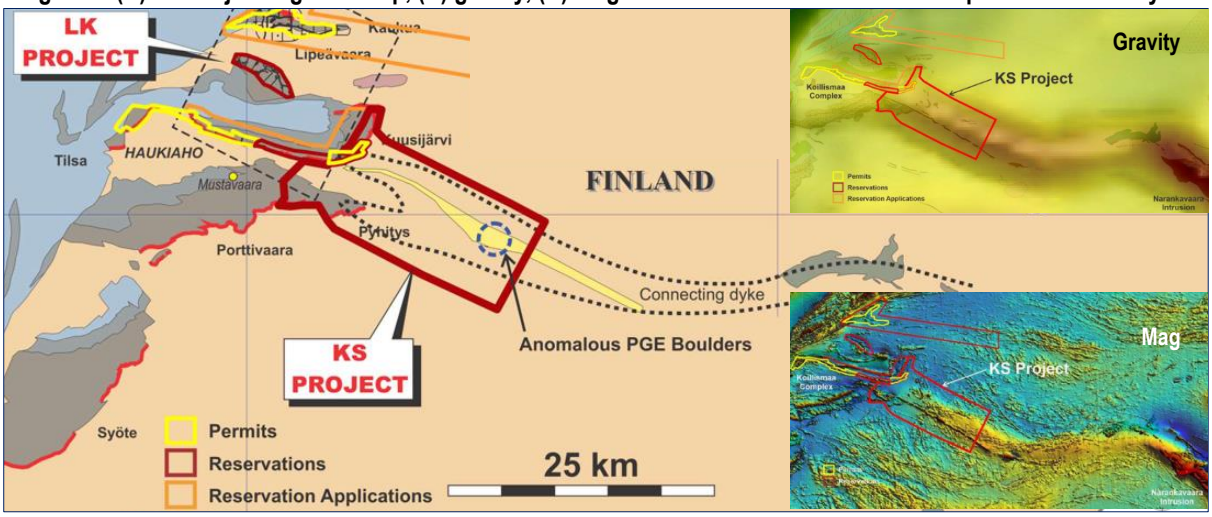


Source: Google Maps, SCP

KS Project: flyer on potential mega-discovery

Similar to the Great Dyke in Zimbabwe, the ultramafic host sequence potentially extends all the way to the Russian border, under cover, yet not so deep that it doesn't show up well on gravity and magnetics (Figure 8). Palladium One has pegged ~20,000ha where the gravity and magnetic anomalies have outlined a large buried feeder dyke associated with the Koillismaa Complex (host to the LK deposit). This is underexplored, virgin ground within mega deposit territory. The Finnish geological survey is halfway through drilling the first deep, ~3,000m stratigraphic hole and have already intersected peridotite at ~1,500m confirming the gravity anomaly is the result of ultramafic cumulate rocks indicating significant magma flow in this feeder. Using Voisey's Bay as an analogue, this could be the deeper, high-grade massive sulphide 'plumbing system' feeding the LK project and entire Koillismaa Complex.

Figure 8. (A) KS Project regional map, (B) gravity, (C) magnetic anomalies and 3D model of potential feeder dyke

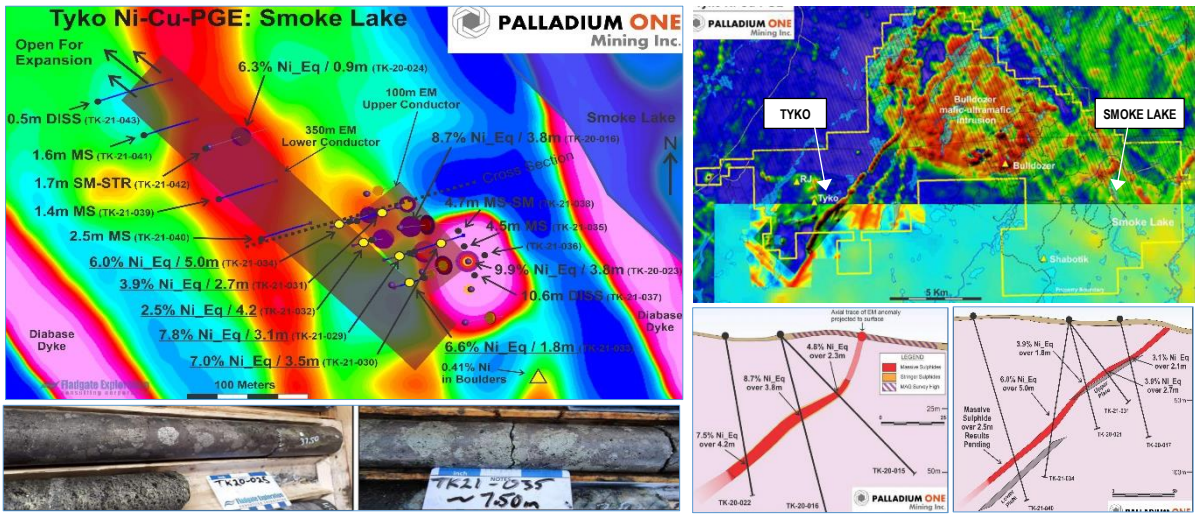


Source: Palladium One

ONTARIO: New Tyko Ni discovery adds Canadian nickel to complete the energy metals portfolio

Tyko was the focus for prior management, but saw little drilling due to a lack of funding, with patchy geophysics and mapping. In 2019, soil sampling on the Smoke Lake anomaly returned >40 times background Ni. The Smoke Lake anomaly was originally identified on the very edge of a historic EM survey (Figure 9A). Refined geophysics highlighted two near-surface conductors over 350m strike, with drilling hitting **3.8m @ 8% NiEq** and **2.3m @ 4.2% NiEq** in massive sulphides in the first two holes, confirming a new discovery. Most fascinating is that geophysics is now proven as a 'silver bullet' as the Smoke Lake massive sulphide (pentlandite) (Figure 9) is an excellent conductor. The best evidence came two weeks ago as Phase 2 drilling extended mineralization up to 350m strike, with drilling in the lower conductor plate hitting massive sulphides up to 5.0m. A strike of 350m and 3m thickness would drive 450kt @ ~5% Ni for 23kt of contained nickel. Whilst more speculative, we see potential for SCPe 1.2Mt @ 5% NiEq if strike / dip bulks out. Geologically these deposits tend to occur in 'clusters' so the 3,000km line VTEM survey underway could see more discoveries.

Figure 9. (A) Tyko Ni-Cu-PGM drilling over Mag / EM conductor plates, (B) property geophysics and (C) sections

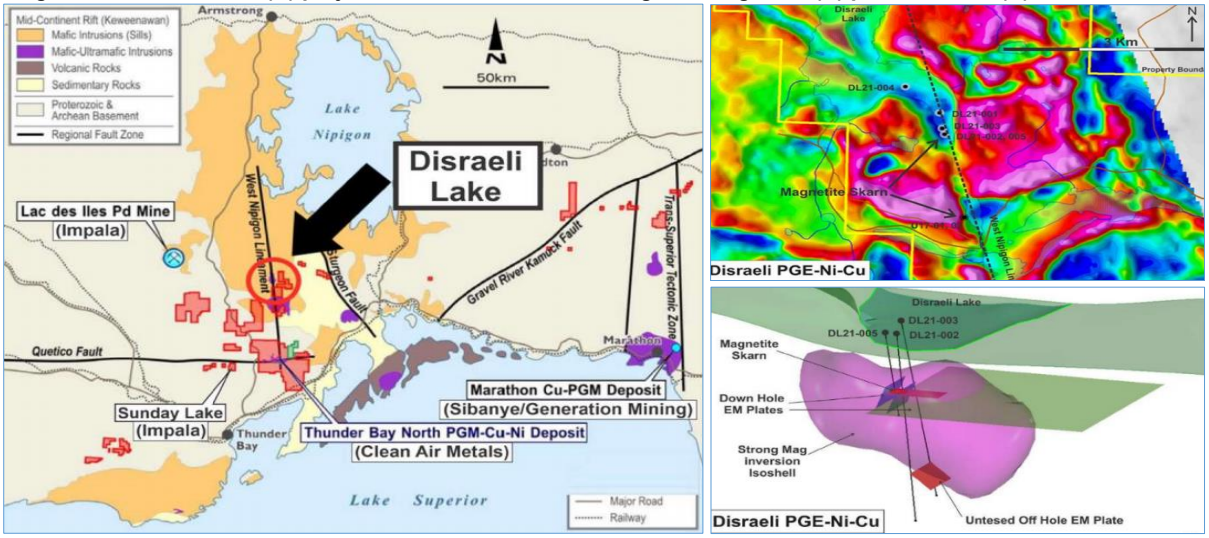


Source: Palladium One

Second Canadian asset Disraeli

The early-stage Disraeli PGM-Ni-Cu target is located only 50km east of Impala's Lac des Iles Palladium mine in Ontario. In 1H21, a maiden 1,400m drill program tested the potential for a feeder dyke / magma conduit similar to the disseminated / massive sulphide mineralization of the TBN intrusion (Clean Air Metals) outlined by airborne EM anomalies. Ice based drilling prior to spring thaw interruption intersected copper-cobalt bearing skarn-type massive magnetite mineralization, albeit more drilling is required to further test the downhole EM conductors.

Figure 10. Disraeli Lake (A) project location and airborne Mag / EM targets in (B) plan view and (C) isometric view



Source: Palladium One

Valuation

SCPe resource: Using our LT deck, we model the 3Q19 Kaukua pit constrained (0.3g/t Pd cut-off) for 0.96Moz @ 1.4g/t PdEq (1.2Moz @ 1.7g/t AuEq) plus SCPe resources for Kaukua South of **1.6Moz @ 1.1g/t PdEq** (1.8Moz @ 1.3g/t AuEq). Adding in historic resources from Haukiaho brings the global SCPe resource to 3.4Moz @ 1.2g/t PdEq (3.8Moz @ 1.3g/t AuEq) and leave room for further expansions outside of this and from additional satellites including Murtolampi. SCPe reserve: using our base case (to 225m only) 1.6Moz resource at Kaukua South, and given the broad widths, we model a 75% reserve conversion for ~1.2Moz PdEq here. Applying the same conversion to the Kaukua and Haukiaho resources, conservatively excluding Murtolampi for now, drives a global inventory of 2.5Moz @ 1.2g/t PdEq (2.9Moz @ 1.3g/t AuEq) supporting >140koz pa PdEq.

Table 1. 3Q19 Kaukua MRE, Haukiaho non 43-101 MRE and SCPe Mineable inventory

LK Project (100%)	Tonnes (Mt)	Grade (g/t PdEq*)	Ounces (koz PdEq*)	Grade (g/t AuEq^)	Ounces (koz AuEq)^
Kaukua Main M&I	11.0	1.49	528	2.17	767
Kaukua Main Inferred	10.9	1.22	427	1.78	621
Haukiaho historic inferred	23.2	1.14	851	1.66	1236
Total	**45.1**	**1.25**	**1,805**	**1.81**	**2623**
SCPe Kaukua South	44.4	1.11	1582	1.61	2299
GRAND TOTAL	**89.5**	**1.18**	**3,388**	1.71	4923
Conversion (%)	*75%*		*75%*		
SCP inventory @ 75% conv.	**67.1**	**1.18**	**2,541**	**1.71**	**3692**

*Source: SCP, 3Q19 Kaukua MRE, 2013 Haukiaho non 43-101 resource; *PdEq @ SCP LT USD: $2,000/oz Pd, $1,100/oz Pt, 1,850/oz Au, $8.00/lb Ni, and $4.00/lb Cu; ^AuEq at spot prices*

SCPe economics: Kaukua benefits from access to cheap power, water, roads, skilled workforce, port / smelter access and low **20% tax** in a safe jurisdiction that requires no security costs. Given the early stage of LK, the strip, schedule, and stockpile are difficult to estimate. Thus, we model based on logistic and grade, depleting Kaukua and Kaukua South at 4.5Mtpa from Y1-12, thereafter mining transitions to the Haukiaho satellite where we model nominal $10m of capex for pre-strip and road work. For now, we don't model stockpiling but we see potential to evaluate the resource of a much-larger lower-strip basis, but hold back on making that assumption until the resource is released. On opex, given the relatively large size, we model US$2.50/t mining in lower half of comparable open pit projects (but well over more enthusiastic peer FS), US$3.00/t G&A, and US$10/t for processing that lifts higher to $11.50/t in Y12 for Haukiaho haulage. We model a 3.5:1 strip and US$300m capex for 143koz pa PdEq (155koz pa AuEq) at US$855/oz PdEq AISC. Whilst it is too early to model concentrate specifications, we expect there will likely be Ni-Cu concentrate and perhaps a PGM concentrate, but for simplicity, we model recovery of 85% for PGMs and Cu, and 50% for Ni based on ~half non-recoverable nickel silicates. We use payability of 75% for now based on the clean concentrate and straightforward shipping logistics via road to domestic Harjavalta smelter access and port city of Oulu for offshore smelting, i.e. we would expect an improvement on this but there is much work to do first. This drives our $NPV_{7\%}$ of C$724m on an asset basis (i.e. at build-start, ungeared, excluding central G&A and finance costs). We sensitize this to payability and Pd price below, noting that at US$1,500/oz (i.e. ~half spot), IRR remains over 24% and NPV over C$437m.

Table 2. SCPe LK Project inputs and economics

LK Project (100%)	SCPe
Mining inventory (Mt)	67.1
Strip ratio (x)	3.5
2PGE + Au ROM grade (g/t)	0.93
Ni ROM grade (%)	0.11%
Cu ROM grade (%)	0.15%
Mining inventory PdEq (000oz)	2500
Mining inventory AuEq (000oz)	2703
LOM PGM recovery (%)	85%
LOM throughput (Mtpa)	4.5
Prod'n PdEq LOM (000oz pa)	**143**
Prod'n AuEq LOM (000oz pa)	**155**
Mining cost (US$/t)	2.50
Processing cost (US$/t)	10.4
G&A (US$/t)	3.00

LK Project (100%)	SCPe
2PGE + Au payability	75%
Base metals payability	75%
% revenue from PGM	61%
LOM FCF (C$m)	1,264
LOM AISC (US$/oz PdEq)	855
Total build capex (C$m)	380
Total sust. capex (C$m)	75
Palladium price (US$/oz)	2,000
USD / CAD	0.79
Discount (%)	7.00%
NPV post-tax (C$m)	724
IRR post-tax (%)	33%
Payback (years)	3.75

Asset value: 1xNPV project @ build start (C$m, ungeared)					
Project NPV (C$m)	$1500oz	$1750oz	$2000oz	$2500oz	$3000oz
Payability: 85%	682	844	1,005	1,327	1,649
Payability: 75%	437	582	**724**	1,009	1,293
Payability: 65%	179	312	441	690	937
Ungeared project IRR:	24%	28%	33%	41%	49%

Source: SCP estimates

Source: SCP estimates

Tyko: developer Mincor (MCR AU) moved markets in CY19 with the Cassini discovery, leading to the current market cap of A$445m. Cassini's reserves of 40kt contained nickel not only come at a lower 3.3%, but extended to ~600m below surface. Quantifying this, Tyko has 230t Ni/vm, vs. Cassini's 62t Ni/vm. Our point is that while small, with diminutive drilling, this asset already stacks up on a global stage. For now, we model a nominal $10m for Tyko, which is likely conservative given the discrete relative valuation of peer Ni-Cu-PGM explorers >$20m with shorter strike lengths and / or lower grades (Table 3). Key here is that Tyko is among the few new discoveries in northern Ontario with road access, surrounded by additional base metal showings >1% Ni, and is essentially 'in for free' at a nominal $10m compared to stand alone nickel peers.

Table 3. Global nickel exploration valuation 'snap shot'

Company	Ticker	Share Price (C$/sh)	Shares OS (000s)	Market cap (C$m)	Asset location
Talon Metals	TLO	$0.60	683	412	U.S.A
Canada Nickel	CNC	$3.57	85	303	Canada, ON
Legend Mining	LEG	$0.10	2755	285	Australia
FPX Nickel	FPX	$0.58	212	124	Canada, BC
Tartisan Nickel	TN	$0.50	109	54	Canada, ON
Garibaldi	GGI	$0.42	122	51	Canada, BC
C1N Nickel	NICO	$0.41	105	43	Canada, ON
Magna Mining	NICU	$0.53	64	34	Canada, ON
North American	NAN	$0.27	124	33	Greenland
Fathom Nickel	FNI	$0.57	45	26	Canada, SK
Giga Metals	GIGA	$0.36	70	25	Canada, BC
SPC Nickel	SPC	$0.21	21	21	Canada, ON
Grid Metals	GRDM	$0.23	91	21	Canada, ON

Source: SCP, Bloomberg

Recommendation: initiating coverage with BUY rating and C$0.70/sh PT

Using the inputs noted above and SCP price assumptions, this drives a $NPV_{7\%\text{-}2000}$ of C$724m for LK. We add an additional C$27m for resources excluded from the mine inventory at US$25/oz Pd, a nominal $13m for Murtolampi satellite based on 200koz @ US$50/oz Pd, and conservatively exclude more speculative upside from KS. For now, we include a nominal $10m for Tyko, but expect it to continue to capture market visibility with further drilling. Diluted for cash and options / warrants we derive a NAV of C$807m. Herein lies our investment thesis – the stock is trading at 0.1xNAV, below both PGM and Ni peers. In our view, the fundamentals driving PGMs have never been stronger, and with the majority of supply primarily out Russia and South Africa, Kaukua is even more attractive as one of the few sizable PGM deposits in a safe tier one jurisdiction not owned by a producer. Nonetheless, with the majority of our SCPe 2.5Moz inventory pre-resource / inferred, we conservatively apply a 0.25xNAV to the project. Adding cash and cash from ITM options, we initiate with a BUY rating and C$0.70/sh PT.

Table 4. SCP Palladium One valuation and sensitivities to Pd price / discount

Commodity price	CY21E	CY22E	CY23E	CY24E	SPOT
Palladium price	2,000	2,000	2,000	2,000	2,593
Platinum Price	1,100	1,100	1,100	1,100	1,086
Gold price	1,850	1,850	1,850	1,850	1,784
Nickel Price	17,632	17,632	17,632	17,632	17,830
Copper Price	8,926	8,926	8,926	8,926	9,342

SOTP *project* valuation*	C$m	O/ship	NAVx	C$/sh
Ungeared @ build start (3Q23)	**724**	100%	1.00x	2.53
Pro-forma cash	20.9	100%	1.00x	0.07
Cash from options + warrants	12.4	100%	1.00x	0.04
SCPe resources ex invty @ US$25/oz	26.8	100%	1.00x	0.09
Murtolampi sat. 200koz @ US$50/oz	12.7	100%	1.00x	0.04
Tyko nominal upside (C$m)	10.0	100%	1.00x	0.03
Asset NAV7% US$2000/oz Pd	**807**			**2.82**
**Shares diluted for options mine build*			Market P/$NAV7_{\%4}$Q20	0.10x

Asset value: 1xNPV project @ build start (C$m, ungeared)*					
Project NPV (C$m)	$1500oz	$1750oz	$2000oz	$2500oz	$3000oz
Discount rate: 9%	439	570	697	953	1,208
Discount rate: 7%	520	665	**807**	1,092	1,376
Discount rate: 5%	616	779	938	1,257	1,576
Ungeared project IRR:	24%	28%	33%	41%	49%
Project NPV (C$/sh)	$1500oz	$1750oz	$2000oz	$2500oz	$3000oz
Discount rate: 9%	1.53	1.99	2.44	3.33	4.22
Discount rate: 7%	1.82	2.32	**2.82**	3.81	4.81
Discount rate: 5%	2.15	2.72	3.28	4.39	5.51

**Project NPV, ex fin. costs and cent G&A, discounted to build start*

Source: SCP estimates

Sense check sees >C$500m value: For reference, perhaps inappropriately in gold equivalent terms, nearly all assets capable of >150koz pa in our universe rely on complex mining, are in the far-north, off infrastructure, or suffer from lengthy N American permitting time frames, yet happily trade in the C$250-740m range once at DFS level. Another slightly tangential top down sense-check is Cardinal Resources (CDV AU), whose 5.1Moz @ 1.13g/t reserve in Ghana came with 5.5% royalty, 32.5% tax, 10% minority and a <7um fine-grind; that asset sold for A$606m with a DFS. With the same endowment, higher payable recoverable grade, combined precious-battery metals, and Tier 1 jurisdiction, we would argue Palladium One would warrant a definitive premium.

Table 5. Group NAV over time diluted for ~9m options / ~30m warrants, but also for mine build equity

Group NAV over time^	2Q21	2Q22	2Q23	2Q24	2Q25
LK Project NPV (C$m)	615	658	708	930	1,231
G&A and finance costs (C$m)	(87.7)	(83.9)	(78.6)	(77.8)	(64.4)
Net cash prior qtr (C$m)	5.9	17.0	16.9	(5.5)	(248.2)
Cash from options (C$m)	12.4	12.4	12.4	12.4	12.4
Resource / exlo nom. (C$m)	39.5	39.5	39.5	39.5	39.5
NAV FF FD (C$m)	585	643	698	899	970
Shares in issue (m)	*286*	*397*	*397*	*476*	*476*
1xNAV7%/sh FF FD (C$/sh)*	**2.04**	**1.62**	**1.76**	**1.89**	**2.04**

Project: USES		Funding: SOURCES	
Pre-DFS exploration / G&A:	C$19m	Cash + pre first Au op.:	C$33m
Build capex:	C$380m	Pre-build equity:	C$30m
Fin. cost + WC over DFS	C$18m	Build equity @ 0.6xNAV:	C$133m
TOTAL USES:	C$417m	65% geared debt @ 8%:	C$247m
Buffer / drill budget:	*C$26m*	TOTAL SOURCES:	C$443m

Share data	Basic	FD with options	FD for build
Basic shares (m)	248.0	286.2	470

Source: SCP estimates, ^fully diluted for mine build and dilutive options

Risks

- **Resource:** Our investment thesis is part predicated on the 3Q19 Kaukua MRE, 2013 non 43-101 MRE, and lastly on our own polygonal estimates for Kaukua South, and is reliant on conversion of resources to reserves to extend this. Only 2.5Moz is used in our SCPe inventory of the potential SCPe 3.4Moz resource, thus we mitigate the risk by using a low 0.25x NAV multiple as pre-resources and inferred form a large part of our valuation.
- **Metallurgy**: In our view, the metallurgical risk is low to moderate as early indications show no fatal flaws but still requires additional focused work to refine / optimize from there.
- **Scheduling** is a moderate risk given the early stage of the project. We model first production in CY25, leaving room for drilling, permitting, engineering and construction over the next three years.
- **Funding**: As with most development projects, financing is a key risk. The current estimated treasury stands at $21m would see the company through its exploration plans, requiring further financing to get to PEA. We assume construction is likely to start in CY23, we are modelling US$300m capex, which is significant compared to the company's current market cap but likely manageable with some combination of debt and equity.
- **Permitting:** In our view, permitting risk is low as Finland is a tier one mining jurisdiction.

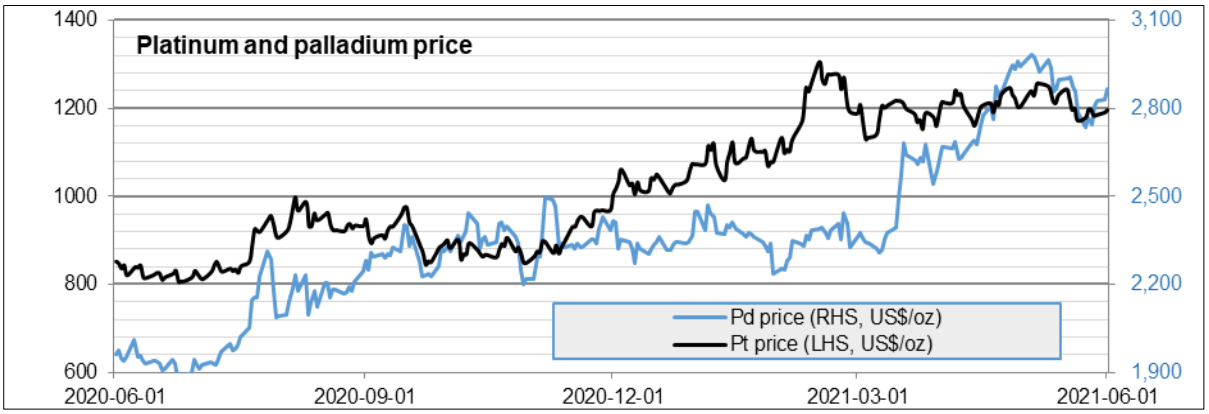
Catalysts

- CY21: Ongoing drill results from planned 27,000m (Finland – 23,000m, Canada – 4,000m)
- 1H21: BHEM and EM at Tyko;
- 2H21: IP at Kaukua
- 2H21: NI 43-101 Haukiaho MRE
- 2H21: Follow up drilling / geophysics at Tyko
- 1H22: Kaukua South maiden MRE
- CY25: SCPe first production

APPENDIX 1: PGM MACRO

Palladium and platinum prices have recovered well since COVID-19 pandemic lows in March 2020 (Figure 11) prior to which, prices were steadily rising since 2015, driven by higher automotive production and the global shift towards stricter emission standards. This sparked the wide spread use of 'catalytic converters' in cars to decrease harmful pollution from car exhaust—PGMs being the critical metals required. Strong demand and ongoing supply concerns continued to push palladium close to all-time highs during early 2021 with production interruptions at Norilsk a key catalyst for March spikes to US$2,600/oz—an interruption forecasted to widen the global deficit to nearly 1Moz this year. Looking ahead, the palladium deficit is expected to widen even further, potentially to 1.8Moz by 2025 as the auto catalyst / industrial demand growth continues to exceed supply. Key here is the regional legislative programs in Europe, North America and China and the implications on PGM loadings. In our view, further environmental regulation is likely to be positive for PGM price momentum / support.

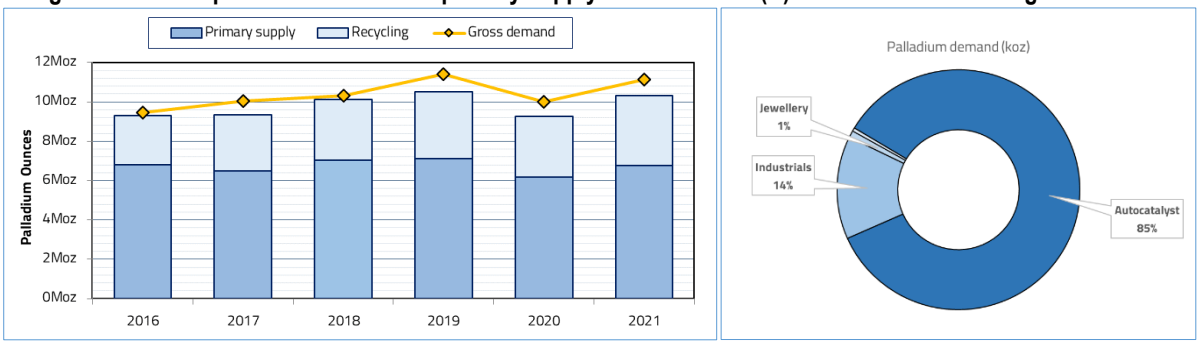
Figure 11. Pd / Pt prices have been on the rise since 2015 and holding strong



Source: Bloomberg, SCP

Palladium demand: Auto production is expected to continue to fuel ~85% of demand (a typical automobile uses 3-9 grams palladium), despite platinum substitution fears, which in our view is likely to have a marginal impact and likely a more gradual transition given the US$250-750 cost implied by 3-9g. We also see the transition to EVs to be more gradual over the next decade as the first step towards a greener future, for many countries still, is to upgrade to more modernized combustion engine vehicles to meet the immediate standards for emission regulations for ICE and hybrid cars that will ultimately drive PGM loadings higher. Industrial demand is ~14% (electronics, medical, chemical) and expected to grow with China's infrastructure modernization, which could push demand higher for palladium catalysts used in bulk chemical processes such as mono-ethylene glycol (MEG). Palladium supply: Compared to other metals, PGMs have a low relative crustal abundance, putting them among the rarest of metals to find in economic concentrations. Globally South Africa and Russia supply over 75%, which points to the emerging scarcity value of significant discoveries and development projects in safer jurisdictions to meet demand and de-risk the global supply chain. Even better are projects in tier one jurisdictions, with low tax, that are of significant scale, on infrastructure, and under $500m build capex. *And this is why Palladium One is a conviction name for us, hitting on both industrial demand, precious metals and battery metals.*

Figure 12. Global palladium demand vs primary supply 2017-2021 and (B) % breakdown of 2021 gross demand



Source: PGM Market Report May 2021

Ticker: PDM CN	**Price / mkt cap:**	C$0.27/sh, C$67m	**Project PNAV today:**	0.10x	**Asset:** LK Project
Author: B.Salier / B.Gaspar	**Rec / 0.25xNAV PT:**	BUY, C$0.7/sh	**1xNAV$_{3Q24}$ FF FD:**	C$1.89/sh	**Country:** Finland

Commodity price	**CY21E**	**CY22E**	**CY23E**	**CY24E**	**SPOT**
Palladium price	2,000	2,000	2,000	2,000	2,593
Platinum Price	1,100	1,100	1,100	1,100	1,086
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Copper Price	8,926	8,926	8,926	8,926	9,342

SOTP *project* valuation*	**C$m**	**O/ship**	**NAVx**	**C$/sh**
Ungeared @ build start (3Q23)	**724**	100%	1.00x	2.53
Pro-forma cash	20.9	100%	1.00x	0.07
Cash from options + warrants	12.4	100%	1.00x	0.04
SCPe resources ex invty @ US$25/oz	26.8	100%	1.00x	0.09
Murtolampi sat. 200koz @ US$50/oz	12.7	100%	1.00x	0.04
Tyko nominal upside (C$m)	10.0	100%	1.00x	0.03
Asset NAV7% US$2000/oz Pd	**807**			2.82
**Shares diluted for options mine build*		Market P/NAV7$_{\%4}$Q20		0.10x

Asset value: 1xNPV project @ build start (C$m, ungeared)*	$1500oz	$1750oz	$2000oz	$2500oz	$3000oz
Project NPV (C$m)					
Discount rate: 9%	439	570	697	953	1,208
Discount rate: 7%	520	665	**807**	1,092	1,376
Discount rate: 5%	616	779	938	1,257	1,576
Ungeared project IRR:	24%	28%	33%	41%	49%
Project NPV (C$/sh)	$1500oz	$1750oz	$2000oz	$2500oz	$3000oz
Discount rate: 9%	1.53	1.99	2.44	3.33	4.22
Discount rate: 7%	1.82	2.32	**2.82**	3.81	4.81
Discount rate: 5%	2.15	2.72	3.28	4.39	5.51

**Project NPV, ex fin. costs and cent G&A, discounted to build start*

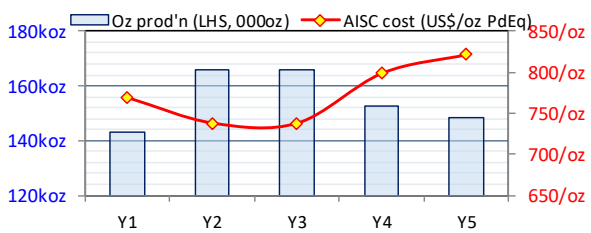
Group NAV over time^	**2Q21**	**2Q22**	**2Q23**	**2Q24**	**2Q25**
LK Project NPV (C$m)	615	658	708	930	1,231
G&A and finance costs (C$m)	(87.7)	(83.9)	(78.6)	(77.8)	(64.4)
Net cash prior qtr (C$m)	5.9	17.0	16.9	(5.5)	(248.2)
Cash from options (C$m)	12.4	12.4	12.4	12.4	12.4
Resource / exlo nom. (C$m)	39.5	39.5	39.5	39.5	39.5
NAV FF FD (C$m)	585	643	698	899	970
Shares in issue (m)	*286*	*397*	*397*	*476*	*476*
1xNAV7%/sh FF FD (C$/sh)*	**2.04**	**1.62**	**1.76**	**1.89**	**2.04**

Geared NAV at first con, diluted for build, net G&A and fin. costs^	$1500oz	$1750oz	$2000oz	$2500oz	$3000oz
NAV at first con (C$m)					
Discount rate: 9%	580	733	883	1,182	1,481
Discount rate: 7%	643	808	**970**	1,294	1,617
Discount rate: 5%	717	897	1,073	1,425	1,777
Geared project IRR:	21%	26%	30%	39%	46%
NAV at first con (C$/sh)*	$1500oz	$1750oz	$2000oz	$2500oz	$3000oz
Discount rate: 9%	1.07	1.44	1.81	2.55	3.29
Discount rate: 7%	1.24	1.64	**2.04**	2.84	3.65
Discount rate: 5%	1.43	1.87	2.31	3.18	4.06

*^Project NPV incl grp SG&A & fin. cost, +net cash; *diluted for build equity*

Production	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**
PdEq production (000oz)	143	166	166	153	148
AISC cost (US$/oz PdEq)	769	738	738	799	822

AISC = C1 + sustaining capex, Y1 = CY25



Source: SCP estimates

Resource / Reserve	**Tonnes**	**PdEq Grade**	**PdEq oz**	**AuEq oz**
Kaukua Main 3Q19 resource	22Mt	1.36g/t	955koz	1387koz
SCPe Kaukau South	44Mt	1.11g/t	1582koz	2299koz
SCP mining invty @ 75% conv	67Mt	1.18g/t	2541koz	3692koz
Haukiaho historical resource	23Mt	1.14g/t	851koz	1236koz

Project: USES		**Funding: SOURCES**	
Pre-DFS exploration / G&A:	C$19m	Cash + pre first Au op.:	C$33m
Build capex:	C$380m	Pre-build equity:	C$30m
Fin. cost + WC over DFS	C$18m	Build equity @ 0.6xNAV:	C$133m
TOTAL USES:	C$417m	65% geared debt @ 8%:	C$247m
Buffer / drill budget:	*C$26m*	TOTAL SOURCES:	C$443m

Share data	**Basic**	**FD with options**	**FD for build**
Basic shares (m)	248.0	286.2	476

Ratio analysis	**CY20E**	**CY21E**	**CY22E**	**CY23E**	**CY24E**
Average shares out (m)	237.2	446.0	475.9	475.9	475.9
EPS (C$/sh)	-	-	-	-	-
CFPS (C$/sh)	-	-	-	-	-
EV (C$m)	56.8	100.9	109.1	63.0	374.4
FCF yield (%)	-	-	-	-	-
PER (x)	-	-	-	-	-
P/CF (x)	-	-	-	-	-
EV/EBITDA (x)	-	-	-	-	-

Income statement	**CY20E**	**CY21E**	**CY22E**	**CY23E**	**CY24E**
Net revenue (C$m)	-	-	-	-	-
COGS (C$m)	-	-	-	-	-
Gross profit (C$m)	-	-	-	-	-
D&A, attrib (C$m)	-	-	-	-	-
G&A + sh based costs (C$m)	1.3	1.3	1.4	2.7	4.0
Finance cost (C$m)	3.7	6.4	8.7	4.3	7.6
Taxes (C$m)	-	-	-	-	-
Net income (C$m)	(5.0)	(7.7)	(10.1)	(7.0)	(11.6)

Cash flow, attrib.	**CY20E**	**CY21E**	**CY22E**	**CY23E**	**CY24E**
EBIT (C$m)	(1.3)	(1.3)	(1.4)	(2.7)	(4.0)
Add back D&A (C$m)	-	-	-	-	-
Less tax + net interest (C$m)	3.7	6.4	8.7	4.3	7.6
Net change in wkg cap (C$m)	0.5	-	-	(0.2)	-
Other non-cash (C$m)	(8.4)	(12.8)	(17.5)	(8.2)	(15.3)
Cash flow ops (C$m)	**(5.5)**	**(7.7)**	**(10.1)**	**(6.8)**	**(11.6)**
PP&E - build + sust. (C$m)	0.5	-	-	80.0	299.7
PP&E - expl'n (C$m)	-	-	-	-	-
Cash flow inv. (C$m)	**(0.5)**	**-**	**-**	**(80.0)**	**(299.7)**
Share issue (C$m)	7.9	20.0	10.0	132.9	-
Debt draw (repay) (C$m)	-	-	-	-	246.8
Cash flow fin. (C$m)	**7.9**	**20.0**	**10.0**	**132.9**	**246.8**
Net change in cash (C$m)	1.9	12.3	(0.1)	46.1	(64.5)
EBITDA (C$m)	(4.9)	(7.7)	(10.1)	(7.0)	(4.0)

Balance sheet	**CY20E**	**CY21E**	**CY22E**	**CY23E**	**CY24E**
Cash (C$m)	7.2	19.5	19.4	65.5	1.0
Acc rec., inv, prepaid (C$m)	0.3	0.2	0.2	-	-
PP&E + other (C$m)	0.1	(0.1)	(0.1)	79.9	379.6
Total assets (C$m)	**7.6**	**19.6**	**19.5**	**145.4**	**380.6**
Debt (C$m)	-	-	-	-	246.8
Accounts payable (C$m)	1.0	0.6	0.6	0.6	0.6
Others (C$m)	0.0	0.0	0.0	0.0	0.0
Total liabilities (C$m)	1.0	0.6	0.6	0.6	247.5
Issued capital (C$m)	20.0	40.0	50.0	182.9	182.9
Retained earnings (C$m)	(13.3)	(21.0)	(31.1)	(38.1)	(49.8)
Liabilities + equity (C$m)	**7.6**	**19.6**	**19.5**	**145.4**	**380.6**

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BUY:	43
HOLD:	0
SELL:	0
UNDER REVIEW:	0
TENDER:	0
NOT RATED:	0
TOTAL	43

[1] As at the end of the month immediately preceding the date of issuance of the research report or the end of the second most recent month if the issue date is less than 10 calendar days after the end of the most recent month