Decommissioning Report for DRD ERGO Mine 20MWac, 22kV Overhead Power Line and Battery Energy Storage System (BESS) (phase 1) Solar Facility

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Table of Contents

1.0 Introduction

Enerj,(Pty) Limited, appointed by DRD ERGO Gold Mining, to manage the SPV : Tshedza 1 Tshedza 1 Pre Project-Development (PTY) LTD - REGISTRATION NO : 2020/829686/07 contracted Sola Synergy Pty Ltd as solar specialist engineers to develop an End of Life (EOL) plan and report for their solar installation project situated at DRD ERGO Mining, approximately 30km east of Johannesburg CBD, Gauteng, South Africa.

The proposed solar installation is aimed at being installed on two (2) sites belonging to DRD ERGO Gold Mining in two (2) phases. The primary site shall be at DRD ERGO Mining located at 7th Road, Brakpan, Gauteng, SOUTH AFRICA and the secondary site is earmarked at 10th Street, Brakpan, Gauteng, SOUTH AFRICA approximately 3.5km southwest from the primary site, near the Brakpan railway station.

The primary site is proposed to house approximately eight hundred (800) strings consisting of fifty (50) tracking solar panels of 545W$_{dc}$ per panel each. The expected installed power for Phase 1 totals up to 20 MW$_{ac}$.
The secondary site is proposed to house approximately one thousand four hundred (1,400) strings consisting of fifty (50) tracking solar panels of 545W$_{dc}$ per panel each. The expected installed power for Phase 2 totals up to 40 MW$_{ac}$.

Phase 1 of the installation shall start at the primary site and will have a capacity of 19.9 MW$_{ac}$. This EOL and decommissioning report SS-DRD-H-RPT-001 relates specifically only to phase 1 of the project. Refer to drawing SS-DRD-G-201 – DRD Gold Phase 1 Solar Panel Proposed Layout, Phase 2 shall be installed to complete the remainder of panels for Site 1 and Site 2 as per drawings SS-DRD-G-202 and 203 as a separate project.

Due to solar technology being considered fairly new (10 years), many new legislative Acts, Codes and Standards are still under development. In addition to this, the technology related to both Photovoltaic (PV) panels and Battery Energy Storage Systems (BESS), are rapidly evolving and changing. A solar plant typically consists of a main substation, series of PV Panels (either tracking or non-tracking), cabling and supports, BESS, inverter stations and where tying back into the national grid, overhead powerlines.
It is expected that all materials and equipment shall be transported and delivered to, or removed from site, at the construction and decommissioning phases respectively.

Area of disturbance for the proposed Ergo SEF

Application area	**Hectares (Ha)**
PV area	~45 ha
Containerised battery storage (BESS)	0.12ha
Overhead powerline	22.4 ha (calculated with an 11m servitude from centre of the powerline, i.e. 11m on either side of the overhead powerline)

2.0 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

Tshedza 1 Pre Project Development (Pty) Ltd proposes to construct a Photovoltaic (PV) solar energy facility to supply power (embedded generation) to the existing Ergo Mining (Pty) Ltd Brakpan Plant, a wholly owned subsidiary of DRD Gold Ltd. The identified site is situated on Ergo Mining owned land adjacent to the Withok Estates Agricultural Holdings and Witpoort Estates Agricultural Holdings areas of Brakpan within the City of Ekurhuleni Metropolitan Municipality, Gauteng Province.

The proposed Ergo SEF will take approximately four (4) months to construct and the operational lifespan of the facility is estimated to be between twenty five (25) and thirty (30) years.

The proposed ERGO SEF entails the following infrastructure:

- Solar PV array footprint comprising of:
  - PV panels with an export capacity of up to 19.9MW over an area of approximately 45 hectares;
  - Mounting structures to support the PV panels. The PV panels will be mounted at an appropriate height so as to receive the maximum amount of solar radiation without the buffeting effects of the wind. The angle of the panel moves and tracks the sun for the maximum amount of solar radiation to be collected throughout the day;
- BESS for containerized battery storage of up to 100 MWh;
- Central inverter/transformer stations to collect the energy generated from the PV panels and convert the electricity from direct to alternating current which can be evacuated into the electricity distribution grid;
- Cabling between the project components; and
- Access roads, internal distribution roads;

- Up to 1000m of internal roads will be built by grading, compacting, and covering the roads with a suitable aggregate. Tar or asphalt will not be used inside the PV plant.

– Fencing around the development footprint;
  - The plant area will be protected by a single wire-mesh fence of 2.6-meter-high, with barbed wire on top running all along the site perimeter. Access to the site will be through a motorized double gate. If required two such gates may be provided.
– Grid connection infrastructure comprising of:
  - ~11 km of 22 kV overhead power line linking the proposed Ergo SEF to two (2) existing substations (from the Ergo Central 88kV/6.6kV substation at the mine, to the Ergo Transfer Pumps 88kV/11kV substation at the tailings dam) which will primarily follow an existing slurry pipe servitude/corridor between the mine and the tailings dam.
– Admin block comprising of:
  - Site offices with control facility and maintenance buildings, including workshop areas for maintenance and storage with onsite basic services such as water for potable use, package plant sewage system and self-generated electricity;
– 2 x sheds will be erected permanently at site for security personnel;
– Assembly plant; and
– Laydown areas.
– Additional infrastructure includes:
– Power during construction will be supplied by diesel generators; if stable grid power can be supplied to the site during construction, the contractor will pay for such power.
- Internet infrastructure within the site will be installed. Fibre lines to the site will be laid prior to commencement of construction of the PV plant. This infrastructure will become permanent for real time remote monitoring of operations.
- Water reticulation infrastructure will be built within the site as part of the contractors' responsibility for ongoing cleaning of modules (part of the Operation & Maintenance (O&M) responsibility).
- A water filtration system (not resulting in brine disposal requirements) will be installed so that soft water is available for cleaning of modules.
- An Operations Centre made up of converted shipping containers will be erected on-site.
- During construction temporary site offices/ workshops will be erected.
- During construction temporary storage areas will be erected and secured, i.e., a hazardous storage facility.
- Upon completion of construction the site will be rehabilitated so that soil erosion is mitigated.

3.0 Abbreviations

CFR	-	Code of Federal Regulations
EPA	-	United States Environmental Protection Agency
EU	-	European Union
MHSA	-	Mine Health and Safety Act of South Africa
OHSA	-	Occupational Health and Safety Act of South Africa
SABS	-	South African Bureau of Standards
SANS	-	South African National Standards

4.0 Codes and Standards

Battery Directive (2006/66/EC)	-	European Union Battery and accumulator and waste batteries and accumulator directive
Amended Battery Directive (2013/56/EU)	-	European Union Battery and accumulator and waste batteries and accumulator with portable batteries and containers containing cadmium directive
40 CFR 243	-	Guidelines for storage, collection and removal of Residential, Commercial and Institutional Solid Waste
40 CFR 246	-	Source separation for materials recovery guidelines
40 CFR 261	-	Identification and Listing of Hazardous Waste
- Sub Part C	-	Characteristics of Hazardous Waste
- Sub Part D	-	Lists Of Hazardous Wastes
40 CFR 262	-	Standards Applicable to Generators of Hazardous Waste
40 CFR 273	-	Hazardous Wastes from Solar Cells and High Tech Industries
40 CFR 273.9	-	Batteries
MHSA 29 of 96	-	Mine Health & Safety Act of South Africa – Act 29 of 1996
MPRDA 28 of 2002	-	Mineral and Petroleum Resources Development Act – Act 28 of 2002
OHSA 85 of 1993	-	Occupational Health & Safety Act of South Africa – Act 85 of 1993
SANS 10400	-	National Building Regulations of South Africa
R. 647 / 2014	-	Construction Regulations of OHSA 85 of 1993
WEEE (2012/19/EU)	-	European Union Waste Electrical and Electronic Equipment Directive

5.0 Health, Safety and Environment

Although the Solar facility is located on DRD / ERGO Mine premises, this will be made available and rehabilitated by the IPP. Decommissioning would therefore fall under the Construction regulations (2014) and OHSA 85 of 1993 and not the Mine Health and Safety Act, Act 46 of 2006.

The IPP shall furthermore be responsible for creating a waste management plan.

6.0 General

The Mining entity shall compile a closure cost estimate as per requirements of the NEMA 107 of 1998 Section 24p and GNR.1147 of 20 November 2015: Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (as amended). Decommissioning forms one (1) part of such a closure report and this report deals with the decommissioning component only.

As previously stated it shall be noted that although the proposed solar plant / facility shall be located on a site or sites belonging to a mining entity, it does not result in any form of mining operations or mine processing whatsoever. Any reference to the requirements of the aforementioned legislation is for guidance only. To this end the guidelines were followed relating to aspects that are common to a mining operation such as the demolition of buildings, concrete removal and the rehabilitation of the site, etc. As per the principles of the Guideline Document no salvage value was included for these common items in the cost estimate but sale value revenue from solar and battery items was included as this is specific to this type of facility and very different to that of a mining operation.

It is required that mining operations to be closed out adequately, in terms of time, cost and quality. Reasonably foreseeable and adequate funds shall be allowed for closing down, decommissioning of facilities and rehabilitation the environment. Reference is made to the Department of Minerals and Energy's (DME) document "Guideline Document for Evaluation of the Closure Quantum of Closure-Related Financial Provision Provided By a Mine", dated January 2005.

All documents associated with decommissioning shall be reviewed and updated annually or as may be required by legislation.

Any infrastructure such as fire protection systems not built into the various components of the solar system shall be removed unless otherwise stipulated below.

This plan is intended to guide the IPP in its responsibility to hand back the site in the same condition as received from DRD ERGO Mines. This is in order for DRD ERGO Mines, as the holder of the right, toward the mine's Decommissioning, Closure and the Rehabilitation Plan and provides a framework to address environmental liability and adverse social and environmental related impacts at the closure of the proposed 20MW PV Ergo Solar Energy Facility (SEF). The decommissioning of the SEF will be subject to all published laws and regulations at the time of EOL.

The Ergo SEF is planned to be operational for up to thirty (30) years, and is thereafter intended to be decommissioned. Closure objectives have been outlined below for adequate planning at end of life, where the site is to be closed and rehabilitated to its current state if not an improved biophysical environment.

7.0 Legislative requirements

The Rio Declaration is recognised as an economic international instrument encompassing the 'polluter pays principle', to promote that the polluter pays for environmental damages. The Declaration is aimed at reducing pollution and environmental damages, and can be used to encourage a SEF developer to compensate for any loss or damage suffered by the environment or humans by being responsible for any environmental degradation caused, as opposed to the State or the consumer bearing the responsibility. The polluter pays principle is deeply entrenched in South African law through NEMA Section 2(4)(p) and is interpreted as assigning responsibility to the agent causing environmental pollution or environmental degradation to bear the costs through means of economic consequences.

The proposed solar system has a life expectancy of 25 years. This report is aimed at providing the requirements and associated cost estimates according to GNR. 1147 GG 39425 dated 20 November 2015: Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (as amended) under section 44 (aE), (aF), (aG), (aH) read with sections 24 (5) (b) (ix), 24 (5) (d), 24N, 24 P, and 24R of the National Environmental Management Act (Act No. 107 of 1998) (NEMA)as related to the End of Life (EOL) decommissioning for a newly proposed solar system.

GNR. 400 GG 44539 dated 5 May 2021: National Environmental Management: Waste Act (59/2008): Amendments to the Regulations and Notices Regarding Extended Producer

Responsibility, 2020 is applied to the decommissioning, rehabilitation and closure plan. The plan must follow applicable laws, regulations and standards at the time of decommissioning. The commitments and recommendations of this plan is to be updated periodically by the holder of the mining right, who must further apply best practice and management measures where gaps exist in the regulatory framework for the protection of the biophysical and social environments at the time of periodic update or decommissioning, i.e. On-going dust-suppression, best practise environmental management and monitoring etc. will be conducted on site to ensure that the extent of the footprint area is not increased.

8.0 Determination and Scope of Financial provision

This plan is written in line with GNR. 1147 GG 39425 (2015), regulation 4 which refers to the determination and guarantee of financial provision of sufficient funds to undertaken rehabilitation and remediation of the adverse environmental impacts from related activities.

Regulation 5 states that “An applicant or holder of right or permit must make financial provision for

(a) rehabilitation and remediation; and

(b) decommissioning and closure activities at the end of prospecting, exploration, mining or production operations; and

(c) remediation and management of latent or residual environmental impacts which may become known in future, including the pumping and treatment of polluted or extraneous water”.

Regulation 6 and 7 must be consulted for cost details to be included in the annual rehabilitation plan, and final rehabilitation decommissioning and closure plan. The applicant must make financial provision at any given time equal to the sum of actual costs of the implementation of this plan for a minimum of 10 years forthwith (one for each of the first 10 years of operation, with the progressive total in the tenth year).

9.0 Closure Objectives

The identified site is currently vacant, and the development is proposed on a portion of land that was previously a gold mine tailings facility. This land has been re-mined, and subsequently rehabilitated to its current naturally vegetated condition which now comprises mostly disturbed grassland.

The objectives of the Ergo SEF Decommissioning, Closure and Rehabilitation Plan for the affected site is inclusive of:

- Returning any areas of disturbance to an acceptable environmental state;
- Control of erosion risk to ensure stability of the site;
- Ensure establishment of indigenous plant communities;
- Alien plant invasion control;
- Ensure that all areas are free-draining and non-polluting;
- Minimise visual impacts of rehabilitated areas by shaping the site where necessary to blend in with the natural landscape;
- Dust control on bare areas that are still to be rehabilitated and where indigenous vegetation is still to be established; and
- Ensure that the area is safe for the intended end land use.

10.0 Decommissioning

DRD / ERGO Mine's overall shutdown and decommissioning plan shall be reviewed in conjunction with SS-DRD-H-DC-001 – Design Criteria for Decommissioning of a Solar Plant and SS-DRD-H-ES-001 – Decommissioning Plan for a Solar Plant. It is envisaged that a specialist and qualified team with assistance and input from DRD / ERGO Mines shall lead the decommissioning portion of the close out of the Solar Plant. All decommissioning activities relating to the proposed Project will occur within the demarcated area (refer to layout map (refer to Appendix I). The following decommissioning activities are anticipated to take place at the EOL of the proposed Ergo SEF:

- Shut down and disconnect the Ergo SEF from the mine's electrical system;
- Disconnect all related services;
- Dismantle
    - all solar PV panels, BESS and overhead power lines and underground cabling, and dispose of them in accordance with waste management legislative requirements;
    - solar PV stands and tracking devices, and reclaim scrap metal where possible; and
- Demolish buildings.

Refer to Appendix A for a detailed schedule of major decommissioning activities.

10.1 Electrical

The facility shall be shut down in accordance with an approved shutdown procedure. The shutdown shall typically be performed in reverse order of normal start-up procedures with all

safety procedures and devices in place. A lockout / tag out and verification (LOTO or LOTOV) system shall be put in place and shall be strictly followed.

Once isolated, locked out and tagged out, the system shall be shut down as per the approved shutdown schedule. The shutdown procedures shall be reviewed and aligned with legislation in affect at the time of decommissioning and updated accordingly.

10.2 Mechanical / Piping

The solar facility is considered to include limited mechanical components. The major foreseeable mechanical equipment typically include air-conditioning units, the solar tracking drive modules (drives and gearboxes) and fire protection systems.

Drives for tracking devices is considered to be de-energised and isolated with the shutdown of the electrical plant rooms. Fire protections systems (where applicable) shall be isolated and locked out as the case may be.

In the event of standby generators or other mechanical equipment having been added during the operation of the facility, the shutdown of these items shall be added into the shutdown procedure and shutdown schedules, taking care to avoid any hydrocarbon spills.

11.0 Removal, recycling and discarding of Electrical cabling, switchgear and racking

Works shall be conducted by environmentally conscious specialist contractors. Components shall be disconnected and removed as follows:

Above ground cabling of approximately five hundred and fifty thousand meters (550,000m) and mostly six square millimetres (6mm2) may be cut off at terminal boxes, panel terminations or at various panel entries. Above ground cables may then be removed from any supporting structure, coiled onto cable drums (where practicable) and sold to recycling facilities or scrapyards approved by DRD / Ergo Mines.

Buried cabling may be cut off above ground and then excavated and removed completely. Once excavated cabling shall also be coiled on cable drums as far as practicable and treated similarly to above ground cables. There may be an estimated twelve thousand meters (12,000m) of buried cabling varying in size up to approximately seventy square millimetres ($70mm^2$).

Any non-reusable items such as lugs, bolts and nuts etc. shall be placed into skips and removed to approved waste facilities, with non-metallic waste placed in separate skips or disposal containers / bins and removed to an approved waste facility.

Any piping supported on cable- and pipe racks shall be removed prior to dismantling of steel structures. Piping, valves and fittings shall be separated by material type and sold or recycled at an approved recycling facility.

Once cabling and piping is removed, cable racking and other cable supports may be removed. Metallic and non-metallic items shall be separated and sent to recycling or waste management facilities. It is considered that most of the installed single axis tracker steelwork for the solar plant shall be fairly easily removed and sold to second-hand merchants. It is not considered that steel structures will require demolition.

Holding down bolts shall be cut off and sold off to recycling facilities unless otherwise agreed to. Any and all non-resalable metallic items shall be placed in skips and removed to an approved recycling facility. If found to be uneconomical, holding down bolts may be treated with reinforced concrete. Any recyclable non-metallic items shall be placed into separate skips and removed to an approved recycling facility.

All non-recyclable materials shall be removed to an approved waste facility.

After all support structures are removed, buildings and other non-metallic structures shall be demolished to natural ground level or 1m below ground level as the case may be and as governed by Legislation at EOL. Demolished concrete may be buried adjacent to plant site if allowed by the National Waste Management strategy in affect or may be sold to the local community in a responsible manner. This shall be reviewed and adjusted at EOL.

All concrete and masonry structures shall be removed and excavated to 1000mm below ground level, backfilled, shaped, covered with topsoil (300mm), and vegetation shall be re-established, as required by the DRD / ERGO Mines' Environmental Management Plan (EMP) and the guideline document.

12.0 Battery Energy Storage System (BESS)

12.1 General

GNR. 400 GG 44539 dated 5 May 2021: National Environmental Management: Waste Act (59/2008): Amendments to the Regulations and Notices Regarding Extended Producer Responsibility, 2020 regulation 15 currently speaks to the Extended Producer Responsibility scheme for products inclusive of Batteries and electrical goods. The only other legislative literature available on recycling of batteries appear to be the European Battery Directive 2006/66/EC as amended by Directive 2013/56/EU. This directive sets a requirement for collection of 45% of batteries and recycling 50% of this value at present. For this facility however it is considered possible to collect 100% of batteries.

In addition the US EPA under their waste management specifications and codes along with US Federal Regulation 40 CFR 261, 40 CFR 262 and 40 CFR 273 shall be reviewed and consulted before discarding of Li-Ion batteries.

At no point shall industrial batteries be discarded to landfill or incinerated, unless otherwise approved in writing, and batteries shall not be discarded as general or universal waste. As there are currently no battery recycling facility in Africa at time of writing this report, a suitable means of discarding of batteries shall be reviewed at End of Life. Typically it is expected that batteries may be shipped abroad to existing recycling facilities by environmentally conscious and responsible contractors.

12.2 Lithium Battery Storage

This document assumes end of life to be end of life of the batteries i.e. > 20 years. LFP batteries do have a second hand market where the batteries are reconfigured and sold as second life batteries at a substantial value. This aspect, i.e. early facility closure EOL was not considered in this report as it is an unlikely scenario.

Design Criteria specificationSS-DRD-H-DC-001 – Design Criteria for decommissioning of a Solar Facility, includes schematics of current available technologies for recycling of Li-Ion batteries. These processes are not discussed in this report, but shall be considered.

Li-ion (LFP) batteries contain flammable and toxic materials that may contaminate ground- and drinking water. Due to its flammability and explosive characteristics, batteries must be fully discharged before releasing to an approved recycling or waste management facility.
Furthermore aged batteries may be less stable than new batteries and at higher risk of fire and explosion. Batteries shall therefore be handled with care or preferably removed by a specialist vendor to an approved recycling or waste facility.

The approved recycling facility shall be able to separate the various components of the batteries and to this end shall:

- Recycle or separate and remove Lead, Iron, Aluminium, Nickel, Cobalt, Manganese and Copper.
- Safely process, recycle or responsibly dump casings made from plastic (polypropylene), aluminium or carbon steel.
- Recover, treat, recycle or responsibly dump electrolyte solvents which include ethylene carbonate or propylene carbonate, which are toxic and flammable.

Batteries shall typically be dismantled by crushing, magnetic separation and density separation and then chemically treated or recycled, repurposed or discarded as per the latest technology available at End of Life. Battery banks may contain air-conditioning units and fire suppressant that may require separate and specialist treatment.

12.3 Inverter Stations

Inverter stations may contain Liquid Crystal Displays (LCD's). As per WEEE 2012/19/EU LCD's larger than 100cm^2 shall be removed and treated separately. PC Boards shall also be removed and treated separately.

Copper and Aluminium components shall be separated and recycled or repurposed as far as practicable.

Non-integrated air-conditioning units shall be removed and recycled or removed to waste separately and integrated air-conditioning units shall remain intact and shall be recycled in accordance with best practice at EOL.

Any wet sprinkler fire protection systems that may be installed in special circumstance or on request from DRD / Ergo Mines' insurance company shall be drained and dismantled. Piping, valves and fittings shall be removed, separated by material type and re-used or recycled. Gas suppression systems shall be isolated. A specialist shall evaluate the condition of any storage cylinders before discharging (if required) and removal to a specialist contractor.

13.0 Photovoltaic (PV) System

Refer to SS-DRD-H-DC-001 – Design Criteria for Decommissioning of a Solar Facility, for a schematic of the current typical recycling processes.

The only current legislation pertaining to waste management of PV panels and inverter stations, appears to be EU WEEE-directive 19 of 2012, which at present requires 85% collection and 80% recycling of PV Panels. For this project it is expected that 100% of items shall be collected.
In addition to the above directive, the US EPA under their waste management specifications and codes along with US Federal Regulation 40 CFR 261, 40 CFR 262 and 40 CFR 273 shall be reviewed and consulted before discarding of PV Panels.

Panel recycling efficiencies are stated to vary between 90% and 95% depending on the process and location at present, and shall be reviewed and agreed with a suitable or approved recycling company at End of Life. These figures are based on current European facilities and available facilities shall be reviewed at EOL.

Approved recyclers shall consider repurposing rather than recovering components. Where panels cannot be repurposed for whatever reason, panels shall be separated in order to:

- Recover valuable resources such as copper, aluminium and silver
- Recover and treat hazardous waste such as lead, arsenic, selenium, cadmium and tin soldering that may leach out and contaminate ground- and drinking water.
- Recover, and recycle rather than dump crystalline silicone (c-Si), polymers (Ethyl vinyl acetate or EVA) and glass whenever feasible and technologically available.
- Responsibly recover, recycle, treat or dump cadmium telluride (CdTe) and copper indium gallium (di) selenide (CIGS) when present and as applicable.
- Energy recover (incinerate) EVA.
- Polychlorinated biphenyls (PCB's) and Polychlorinated Terphenyls (PCT's) shall be removed before recycling
- Batteries, PC Boards, Liquid Crystal Displays (LCD's) greater than 100cm2, shall be removed and treated separately.

Approved recyclers or waste management contractors shall take cognisance of the fact that physical processes generate large amount of dust containing glass that is considered toxic and be able to treat these fumes correctly. For Record keeping and reporting it is recommended to refer to the current and future National Legislation or EU directives as the case may be.

All external electrical cables and terminations boxes shall be removed prior to shipping PV Modules and Inverter Stations to an approved recycling or repurposing facilities. PV Panels shall be transported to recycling and repurposing facilities in tact as far as possible. Any damaged PV modules shall be handled with care and shall preferably be placed in a suitable containers or skips to eliminate any spillages.

Any and all PC Boards and LCD Screens larger than 100cm^2 contained in inverter stations shall be removed and retired to waste separately.
Structural supports for PV panels may consist of steel or aluminium structures and shall be separated by type of material for resale or recycling.

14.0 Overhead Power line

The new 220kV overhead powerlines connecting to the 88kV substation shall be transferred to DRD / ERGO and shall remain in affect at the end of life of the PV System.

15.0 Roads

Access roads shall be rehabilitated and reinstated to natural contours and vegetation as per the Guidelines Document. Vehicle movement will be restricted to environmentally approved site access. Refer to ITS (Innovative Transport Solutions) report no. 4368_DRD Springs TIA_MB_NJ_2021-07-21 as amended at End of Life.

16.0 Work Excluded

Activities outside of the Solar facility e.g. any mining related decommissioning, mine and process plant decommissioning falls outside of the solar plant decommissioning scope. Mine and process plant decommissioning shall fall under DRD / ERGO Mines' mine decommissioning plan.

In addition, existing above- and underground services not specifically mentioned or included in the current scope of work shall also be excluded.

Unless otherwise agreed to, removal of bulk concrete from site is not currently envisaged, but concrete may be sold to the local community. Any underground sewerage or waste water pipelines, manholes, pump stations etc. which are existing or installed under separate facilities

and outside of the Solar plant scope of works shall also be excluded from this decommissioning report.

Any power Utility Provider (e.g. Eskom) cables and infrastructure as well as any infrastructure belonging to, or associated with, other forms of renewable energy that may be implemented over the Life Cycle of the facility are excluded from this decommissioning report.

Any instrument and control cable and facilities installed, by Others for other purposes, outside of the Solar project Scope of Works as well as the removal of any cable ducts made of PVC, decommissioning of main fire pump station(s) including ancillary equipment, removal of underground fire water lines (where applicable) and any other service piping and equipment in existence or added during the project life is considered outside of this decommissioning report.

Furthermore, any and all structures not directly related to, or installed as a result of the Solar facility, any process building and mine structures shall be decommissioned, removed or demolished as per legislation in place at EOL and under DRD / ERGO Mines' decommissioning plan.

17.0 Closure

Upon completion of decommissioning, the following closure activities must be undertaken:

- All rubble will be removed and disposed of at a suitably licensed disposal facility;
- Fencing will be removed, reused, and recycled where possible in line with the waste hierarchy; and
- All compacted and disturbed areas will be ripped, sloped and shaped to a more natural state.

18.0 Decommissioning and Rehabilitation Cost Estimate

The assessment shows that there is a very strong likelihood that the proceeds of sales of the solar components (not salvage) during the decommissioning and EOL closure of the solar facility will exceed the costs to be incurred for the removal of aspects and items defined in the Guideline Document using the Master rates as indicated.

The calculated cost for the EOL decommissioning of the 19.9 MW solar and BESS facility which is the focus of this report is Rules based level 2 assessment of the quantum of financial provision is expected to return a revenue from recycling of R2.2 million.

It is therefore determined that no additional money would be needed or should be added to the DRD Ergo EOL reserve facility for the purposes of decommissioning of the solar facility to the standards required by the MPRDA 28 of 2002 and Guideline Document.

Refer to Appendix B – Table of quantities and cost estimates for the breakdown of the Guideline document cost. Refer to Appendix C for expected revenue.

19.0 Risk

The risk profile, based on the fact that no mining operations are considered for the project site footprint used for the solar facility, is determined as Class A – Low Risk. Refer to the Department of Minerals and Energy's (DME) document "Guideline Document for Evaluation of the Closure Quantum of Closure-Related Financial Provision Provided By a Mine", Table B2, Step 2A.

20.0 Environmental Sensitivity

All sensitive areas as identified through the Basic Assessment Process and related specialist studies must be avoided and conserved throughout the decommissioning and closure of the SEF. The environmental sensitivity is considered Medium Sensitivity based on "Guideline Document for Evaluation of the Closure Quantum of Closure-Related Financial Provision Provided By a Mine", Table B2, Step 3, Table B4. This is due to "The development being a mix of disturbed and undisturbed areas within an overall planned framework."

21.0 Master Rates, Multiplication Factors and weighting factors

Master Rates for closure may be taken from the various tables provided in the Guideline Document. The rates listed below are for January 2005 and values will be escalated to the average inflation rate of 6% for the period to January 2021. When new data become available this will need to be updated.

The 2005 applicable rates are listed in Appendix B – Table of quantities and cost estimates.

22.0 Closure costs

The estimated closure cost is detailed in Appendix B (Guideline Document Table of quantities and cost estimates 2005), and is summed at an estimated total of R2mil before inflation. A value of R5.1mil is derived for the period 2005 to 2021 taking into account annual inflation (at inflation@ 6% CPI pa).

The Project Proponent is required to make provision for the estimated closure cost of the Ergo SEF as calculated, by means of a Bank Guarantee or via an approved Rehabilitation Trust Fund.

Appendix A

Schedule of Major decommissioning activities

Item No.	Activity
1.	**Shutdown PV Panel charging facility and lock out charging side**
2.	**De-energise and drain BESS completely**
3.	**Isolate and lockout switchgear complete**
4.	**Remove PV Panels from structures**
4.1	Disconnect and remove cables. Resell or remove to recycling facilities
4.2	Remove PV Panels to approved recycling and waste facilities
4.3	Remove tracking drives to recycling and waste facilities
5.	**Remove BESS**
5.1	Disconnect and remove cables. Resell or remove to recycling facilities
5.2	Remove BESS to approved recycling and waste facilities
6.	**Remove Inverter Stations**
6.1	Disconnect and remove cables. Resell or remove to recycling facilities
6.2	Remove Inverter Stations to approved recycling and waste facilities
7.	**Remove Balance of plant cabling and resell or move to recycling facilities**
8.	**Isolate, lock out and remove fire protection and detection systems**
9.	**Structural Steel**
9.1	Dismantle PV support structures and resell or remove to recycling facilities
9.2	Empty out any shipping containers (when used) and resell or remove to recycling facilities
10.	**Demolish reinforced concrete structures and buildings**
11.	**Rehabilitate surfaces**
11.1	Rehabilitate Roads and subsided surfaces
11.2	Rehabilitate and grass other surfaces
12.	**Remove Fencing and resell or remove to recycling facilities**
13.	**Aftercare and maintenance for about 2- years**

Appendix B

Guideline Document Table of quantities and cost estimates 2005

Component	Description	Unit	Master Rate	Multiplication Factor	Qty	Cost
1	Processing Plant	m^2	R6.82	1	200,000	R1.3mil
2A	Steel - Buildings and Structures	m^2	R95	1	1,500	R0.14mil
2B	Reinforced Concrete - Buildings and structures	m^2	R140	1	1,900	R0.3mil
3	Access Roads	m^2	R17	1	8,000	R0.14mil
10	General Surface Rehabilitation (per 10,000m^2)	ha	R52,600	1	1	R0.05mil
12	Fencing	m	R60	1	2,000	R0.02mil
13	Water management (per 10,000m^2)	ha	R20,000	0.25	1	R0.01mil
14	Maintenance (per 10,000m^2)	ha	R7,000	1	1	R0.01
	TOTAL before inflation					**R2mil**
	TOTAL after inflation@ 6% pa					**R5.1mil**

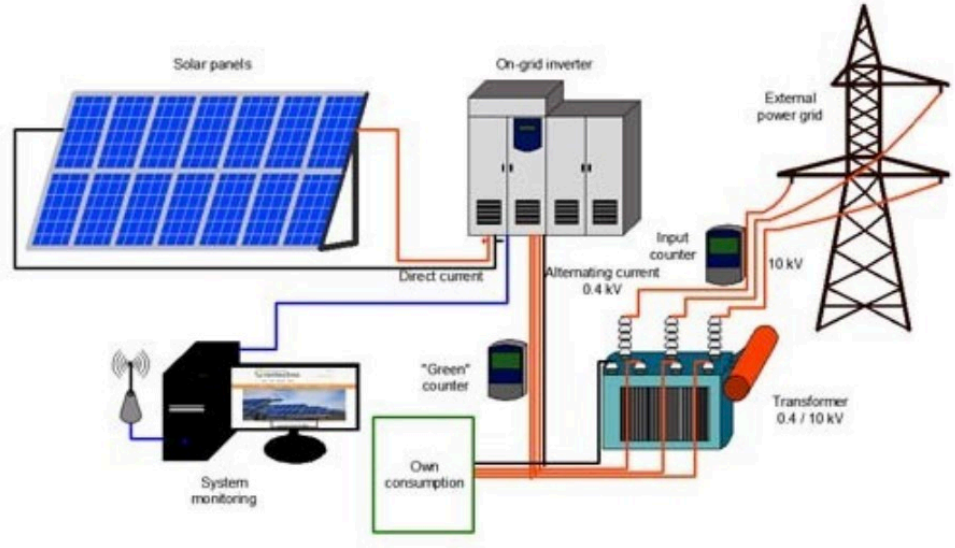
Appendix C

Expected revenue and expense of other non-listed items from recycling

Item	Description	Quantity	Unit	Expense	Revenue
1.	Remove Electrical cabling (15% of Original cost)	110,000	m		R0.8mil
2.	Remove and recycle PV Panels	22,000	ea	R1.4mil	
3.	Remove and recycle Inverter stations / PV Transformers	5	ea	R0.1mil	
4.	Remove and recycle Battery Systems (10% Of Original Cost) (1.3m x 1.3m x 2.3m x 3,550kg)	85	ea		R8mil
5.	Remove BESS Transformers (3.7m x 1.8m x 2.6m x 8,000kg)	1	ea	R0.02	
	Nett Revenue from recycling				**R7.3mil**

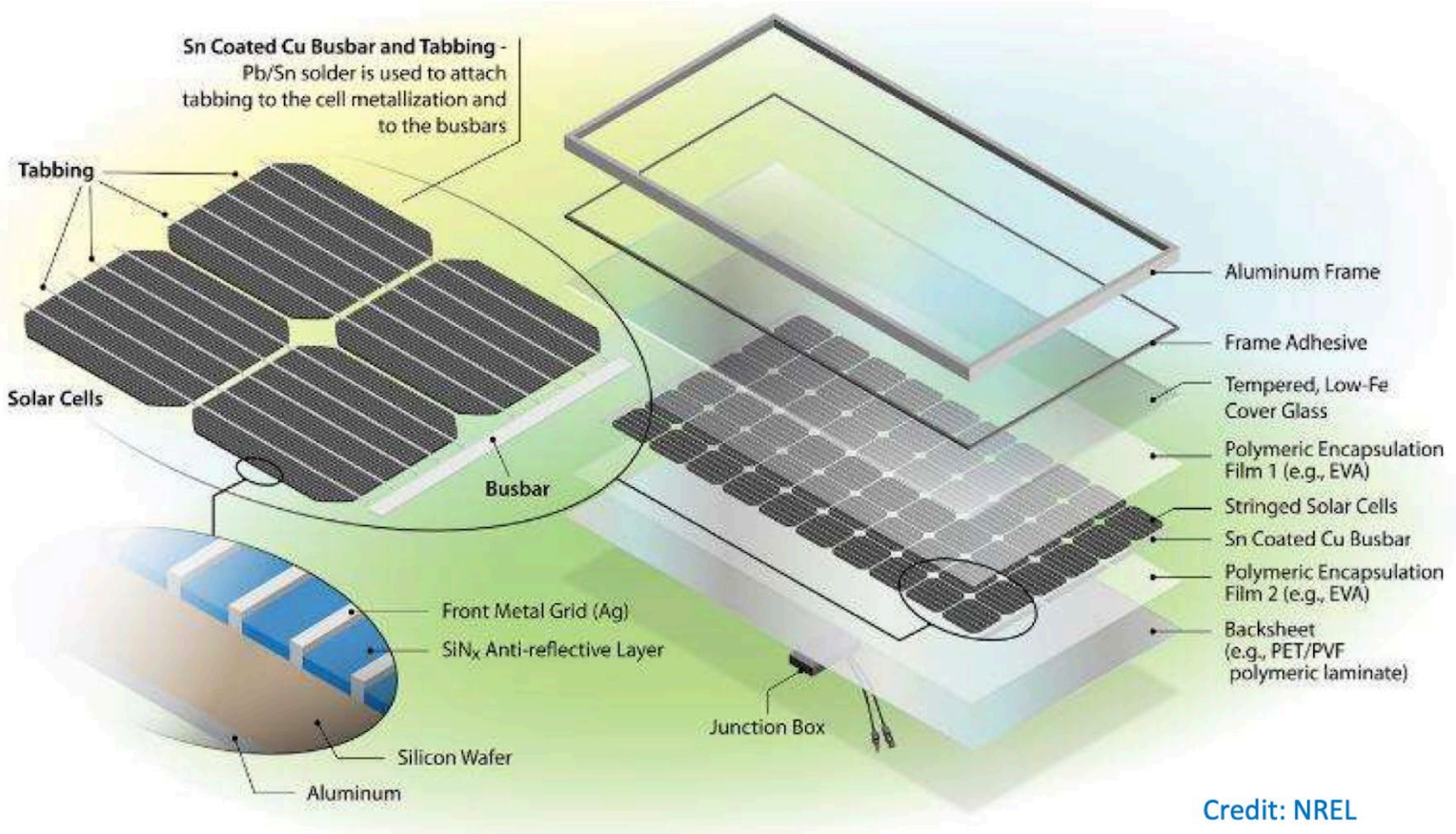
Appendix D

Solar System Components



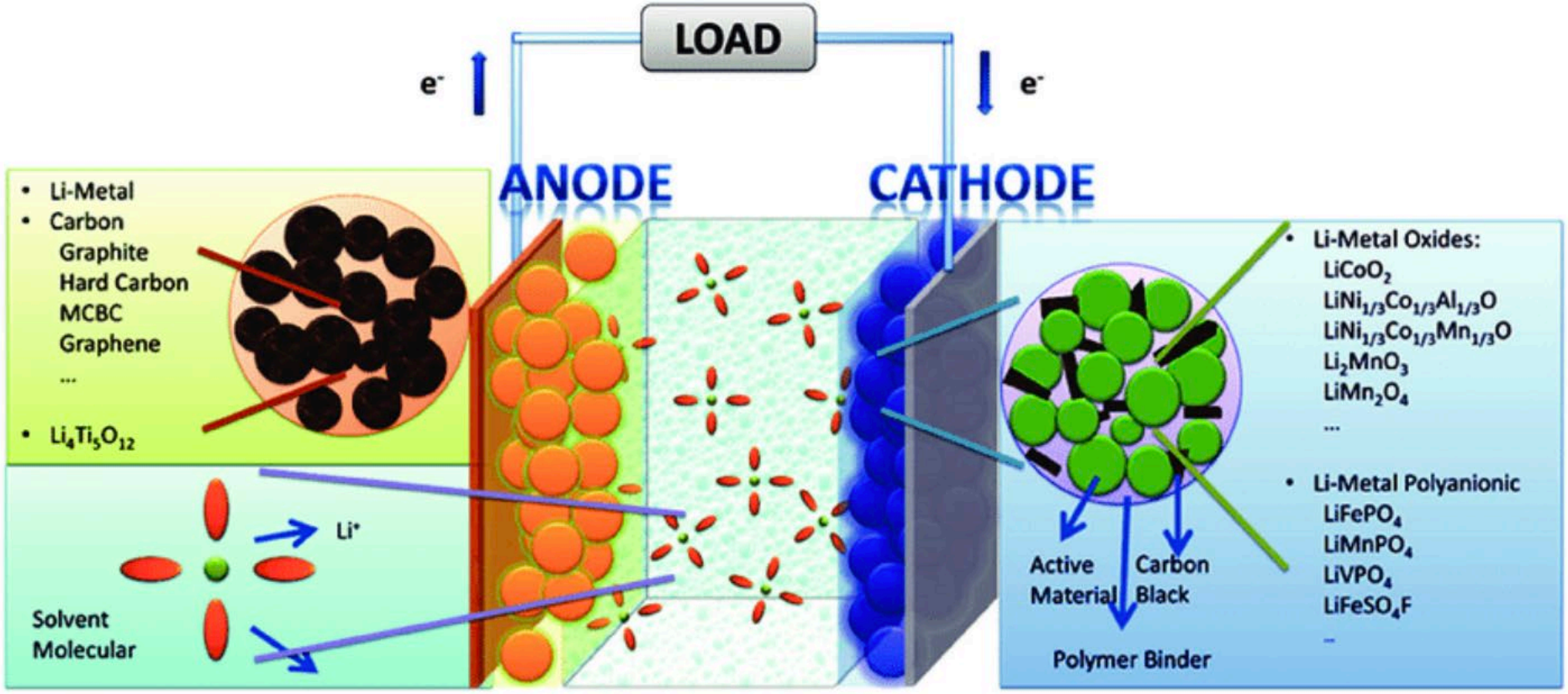
Appendix E

Solar Panel Components



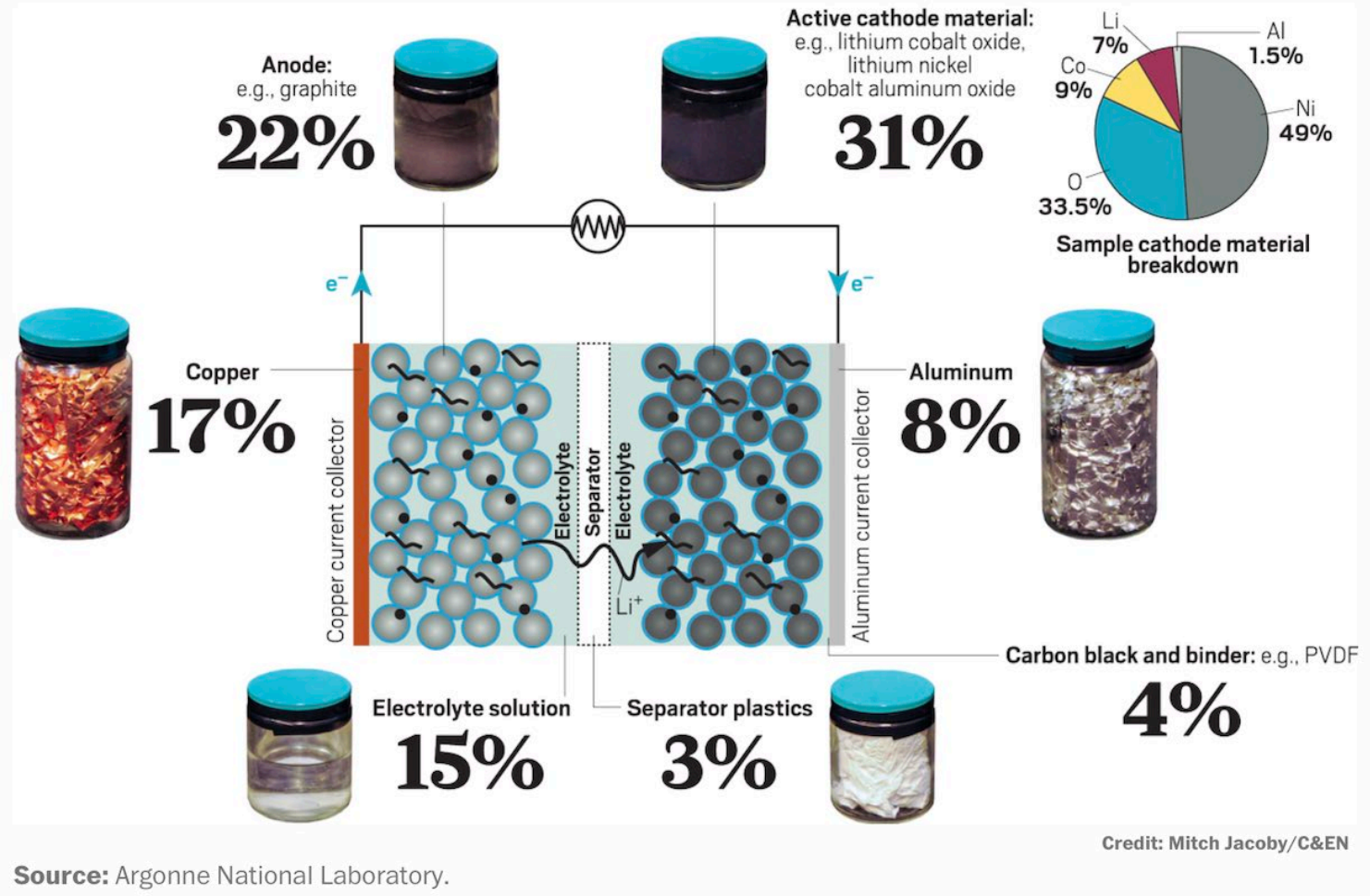
Appendix F

Li-Ion Battery Components (Various types)



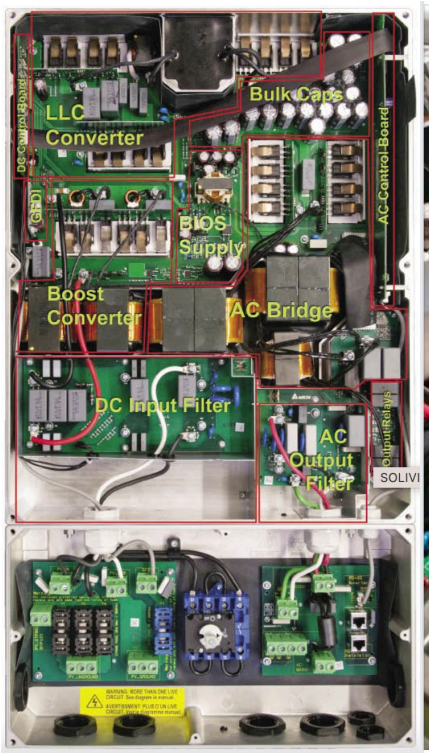
Appendix G

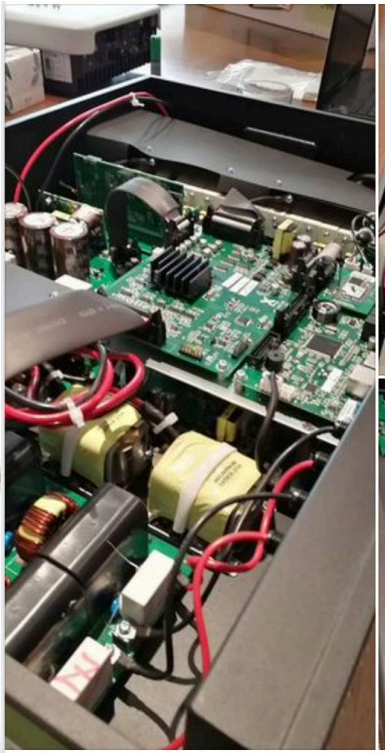
Li-Ion Battery (NMC)

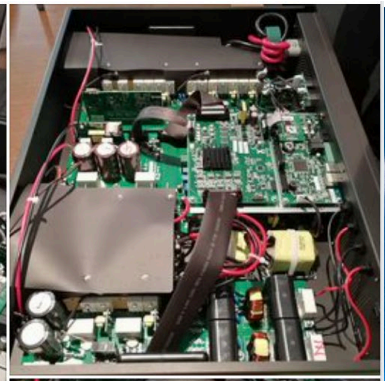


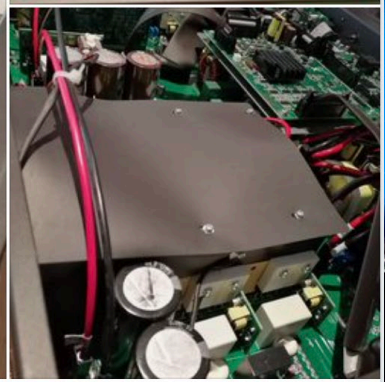
Appendix H

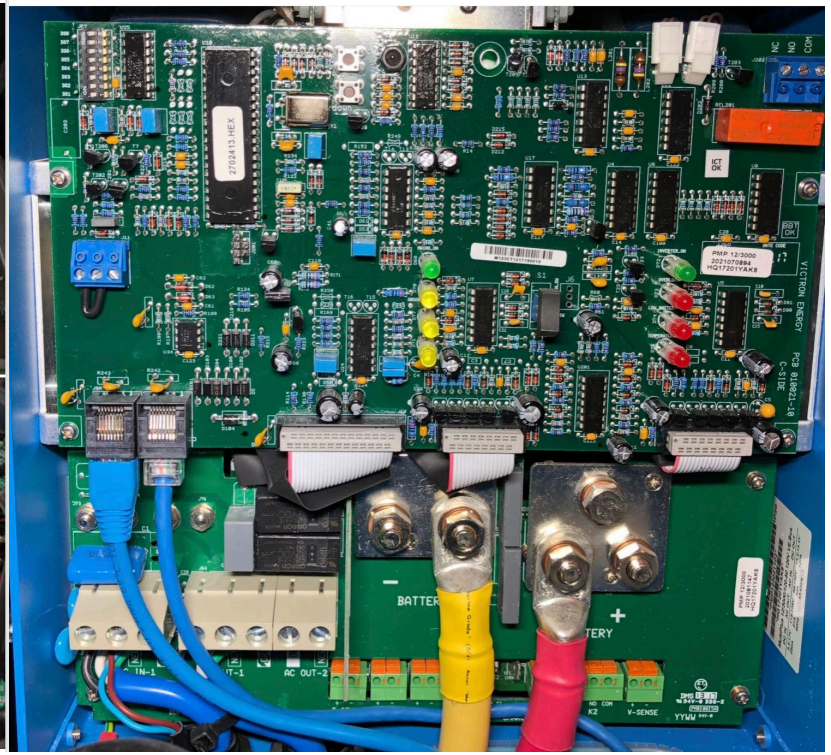
Inside an Inverter





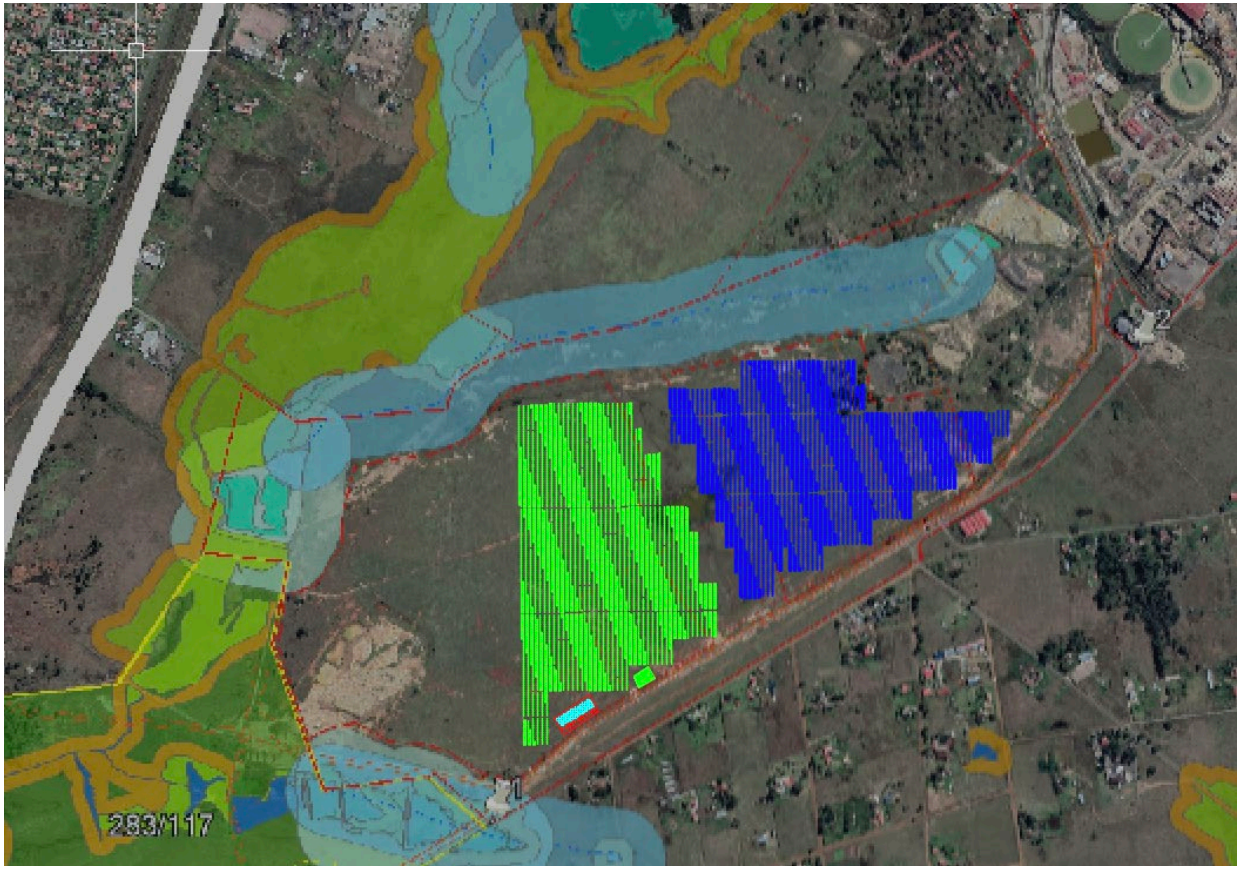


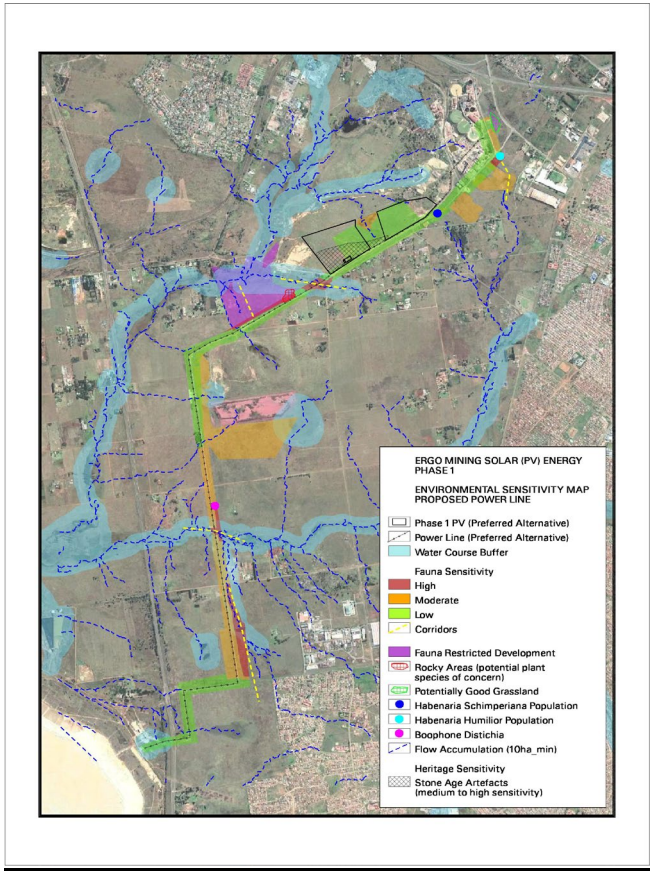




Appendix I

Proposed Phase 1 Site Layout and sensitivity map





Appendix J

Photos of the proposed phase 1 solar and BESS facility