DECOMMISSIONING STRATEGY

Hive Battery Developments will build, commission and operate HIVE Battery Plants for 20 year terms.

It will decommission end of term Battery Plants, complying to codes and guidelines.

It accepts Plant lifecycle commitments of decommissioning, and site remediation.

Sites designed and built with light construction methods in order to ensure effective demobilisation of all plant and equipment at Site end of life.

It fully supports sustainability, aiming to reuse, recycle or repurpose all plant and equipment.

Battery Cell recycling is advancing quickly with good operations already operating in Australia.

All other plant and equipment is recyclable or reusable.

Decommissioning Process Summary

- Plant Decommission Decision
- Site Survey
- Approvals
- Decommissioning Plan
- Taking Plant Offline
- Conduct Decommission
- Rehabilitate Site
- Reuse, Recycle and or Resell
- Reporting and Tracking

Hive Battery Developments will reserve resources to cover the decommissioning process for each Battery Site.

Decommissioning Sequence is summarised on the following Page:

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DECOMMISSIONING SEQUENCE

Decommissioning BESS projects begin within 12 months of Site ceasing operation with 6 month timeframe to completion of decommissioning works.

Moitoriing and site restoration may extend beyond this period to ensure successful revegetation and rehabilitation..

HIVE Battery Solutions will be responsible party for Project decommissioning.

Anticipated sequence of decommissioning and removal is described below, noting overlap of activities determined by chosen decommissioning contractor.

- Reinforce access and internal areas, if needed, and prepare Site for component removal.
- Install temporary fencing and best management practices to protect sensitive areas and resources
- De-energize BESS
- Remove BESS Battery Storage Units
- Remove Power Conversion System
- Remove support piers and foundations
- Remove electrical cables and counduits
- Remove perimeter fencing
- Remove external and internal access and grade site
- Decompact subsoils [where required], restore and revegetate Site land to pre-construction land use to extent practicable including the following steps below:

    - Gravel pavements removed, stockpiled and removed to a suitable recycling facility after a clearance certificate has been issued by a geotechnical engineer.
    - The pad sites shall be excavated to 100mm below natural surface levels and stockpiled.
    - 100mm of topsoil and grass seeds shall be spread over the area of the pad site.
    - If Site permits and land owner agrees, pad material can be spread on site (providing the location is not flood prone).
    - Where material is being spread on site; strip topsoil, spread pad material, replace topsoil and grass seed.
    - Where the excavated material, from the pads, is being removed from the site. Prior to removal it shall be tested by a geotechnical engineer for supply of an Excavated Natural Material (ENM) report.
    - If the ENM report confirms the material is not contaminated it can be reused on another development site.
    - If the ENM report identifies contaminants, the material must be disposed of, via an appropriate method, to a suitable waste disposal centre.

Ensuring Appropriate Rehabilitation and Recycling at the Decommissioning Phase of a BESS project

To ensure the appropriate rehabilitation and recycling of Battery Energy Storage Systems (BESS) at the end of their operational life, the following measures could be implemented.

Decommissioning Plan

We recommend that a detailed decommissioning plan be submitted to the Council for review and approval 12 months prior to the decommissioning date (in 20 years' time). At that time, more specific options will be available to ensure appropriate decommissioning, land rehabilitation, and maximum recycling of the project components.

The decommissioning plan could include the following items:

- **Adherence to Regulations** – show how the decommissioning will adhere to NSW and Australian regulations and standards for the recycling and disposal of BESS to ensure environmentally responsible practices.
- **Advanced Recycling Techniques** – utilize state of the art recycling technologies capable of efficiently and safely extracting valuable material from used batteries.
    - Australia has several initiatives and facilities dedicated to recycling lithium iron phosphate (LFP) batteries. Key players include:
        - **Envirostream Australia:** A subsidiary of Lithium Australia, Envirostream operates a battery recycling plant in Victoria. They focus on shredding and recycling various lithium-ion batteries, including LFP. The process recovers valuable materials such as steel, copper, aluminum, and mixed metal dust, which can be repurposed into new batteries (Emerging Technology News) (The West Australian).
        - **Renewable Metals:** This startup, based in Western Australia, is scaling up its operations with plans for a pilot plant in Perth. They have developed technology to recycle a wide range of lithium-ion batteries, including LFP. Renewable Metals aims to recover over 95% of valuable materials from the batteries and is

supported by significant investment to enhance their recycling capabilities (pv magazine Australia).

- These efforts are part of a broader move to develop a robust battery recycling industry in Australia, addressing the growing demand for effective waste management as the use of lithium-ion batteries in various applications increases.

- **Baseline Environmental Assessment** - Conduct a detailed assessment of the site's current environmental conditions to identify any contamination or alterations caused by the battery storage project.
  - **Soil and water remediation**
    - **Contamination Testing:** Test soil and groundwater for any contamination from the battery storage operations. Common contaminants could include heavy metals and chemical residues from batteries.
    - **Remediation Efforts:** If contamination is found, undertake soil and water remediation efforts. This could involve techniques like soil washing, bioremediation, or chemical treatment to remove pollutants.
  - **Restoration of Vegetation and Wildlife Habitats**
    - **Revegetation:** Restore native vegetation by planting local plant species that were present before the installation of the battery storage project. This helps in stabilizing the soil and providing habitat for local wildlife.
    - **Habitat Restoration:** Implement measures to restore habitats for wildlife, which may include creating water features, planting specific vegetation, or installing structures that support local fauna.
  - **Long-Term Monitoring and Maintenance**
    - **Environmental Monitoring:** Establish a long-term monitoring program to track the recovery of the site. This includes regular soil, water, and vegetation assessments to ensure that the site is returning to its natural state.
    - **Maintenance:** Conduct regular maintenance activities to manage invasive species, repair any erosion control structures, and ensure the success of revegetation efforts