

# ASX Announcement

16 November 2020

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## PRE-COMMISSIONING OF NEW STATE-OF-THE-ART aMES™ PILOT PLANT

### Highlights

#### TRANSITION TO PRE-COMMISSIONING PHASE

- Successful mechanical completion of aMES™ pilot plant represents key milestone.
- Commencement of pre-commissioning related activities currently underway.
- Pilot plant provides important process demonstration and optimisation capabilities.



**Figure 1:** State-of-the-art aMES™ Pilot Plant

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Parkway Minerals NL (ASX: **PWN**) (“**Parkway Minerals**” or the “**Company**”) is pleased to provide the following update, regarding the commencement of pre-commissioning of the recently installed, state-of-the-art, aMES™ pilot plant, at Victoria University.

## Key Stages

### Completed – Mechanical Completion

Following the detailed engineering, procurement & construction phase that formally commenced at the beginning of this year, the new aMES™ pilot plant, has now successfully achieved mechanical completion (refer *Figure 1*).

### Current Focus – Pre-Commissioning

The aMES™ pilot plant is currently undergoing a series of pre-commissioning tests, involving standard QA/QC procedures including leak-testing of piping and vessels, testing of rotating equipment, as well as testing of instrumentation, controls and associated process logic.

### Forward Plan – Commissioning & Process Piloting

Following the completion of pre-commissioning tests, the aMES™ pilot plant will initially undergo a staged start-up procedure to verify key process steps, to further confirm safe and effective operational performance.

The aMES™ pilot plant, will then undergo formal commissioning as part of a broader process piloting campaign, initially commencing with feedstock in the form of potassium enriched mixed salts, from the Karinga Lakes Potash Project (KLPP, refer *Figure 2*).

Subsequent testwork involving the aMES™ pilot plant, will include feedstock from third-party projects, providing Parkway Minerals with an important process demonstration, optimisation and validation capability, an essential requirement for successful commercialisation.



**Figure 2:** (a) *Crushing of potassium enriched mixed salts from KLPP, (b) Fine milling of mixed salts.*

## Commentary

### **Parkway Minerals – Managing Director, Bahay Ozcakmak commented:**

*“We are delighted to announce, the completion of another key milestone on our aMES™ commercialisation journey. In addition to showcasing some of our key competencies, the aMES™ pilot plant provides us with an incredibly powerful capability to demonstrate the performance and advantages of our aMES™ technology. The aMES™ pilot plant has been designed with flexibility in mind, allowing us to readily reconfigure the plant, to be able to test a range of process designs (flow sheets), thereby maximising the utility of the pilot plant.*

*In parallel to our aMES™ pilot plant strategy, we’ve also developed powerful process simulation and techno-economic tools, which enable us to effectively, i) design & simulate an aMES™ based flow sheet, then ii) pilot the flow sheet at both small and large scale, and then iii) evaluate the financial performance of the conceptual application. From a commercialisation perspective, it is difficult to overstate the importance of this integrated capability.*

*Whilst delivery of this project during Covid-19 related lockdowns in Melbourne, presented challenges in terms of the project delivery schedule, I am immensely proud of our engineering team, particularly Raza Hasan, who managed the successful delivery of this important project.*

*I’d also like to acknowledge the financial support of the Australian Government, through the Australian Research Council, as well as thank Victoria University for the substantial technical, operational and financial support provided, in relation to achieving this significant milestone.”*

On behalf of Parkway Minerals NL.



**Bahay Ozcakmak**

Managing Director

**This announcement has been authorised for release by Bahay Ozcakmak (MD) on behalf of the Board of Parkway Minerals NL.**

## Additional Information

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## aMES™ Technology

The *activated Mineral Extraction System*, or **aMES™** is an innovative process technology that enables the treatment of concentrated brine solutions to recover a range of valuable compounds, reagents and fresh water. The technology utilises a proprietary multi-staged process incorporating novel membrane technology and is based on proprietary IP, incorporating patents, expertise and know-how acquired over more than a decade of intense process development.

### **Advantages of the aMES™ technology include:**

- improvements in mineral recovery and product quality,
- opportunity for substantial project capex & opex savings,
- efficient use of energy and produces pure water as a by-product, and
- improved project footprint and environmental sustainability.

Ongoing collaboration with a number of brine project developers and operators has confirmed there are many applications where the aMES™ technology has the potential to deliver substantial value by enhancing existing flowsheets, in order to improve overall project performance.

### **Additional Information**

[www.parkwayminerals.com.au/ames-technology](http://www.parkwayminerals.com.au/ames-technology)

## iBC™ Technology

The *integrated Brine Causticization*, or **iBC™** is a patented process technology that simultaneously removes common impurities from waste brine streams and converts sodium carbonates and bicarbonates commonly found in coal seam gas (CSG) brines, into more soluble sodium hydroxide.

As a result of the causticization step, the iBC™ technology produces a purified brine suitable for downstream processing, including with the aMES™ technology, for the production of various salt products and industrial-grade sodium hydroxide.

### **Additional Information**

<https://www.parkwayminerals.com.au/ibc-technology>

## aMES™

### Brine Processing Technology

#### Key Industries (Applications)

- Mining natural brine (salt lakes)
- Solution mining brine (potash)
- Refinery & industrial waste brine
- Wastewater treatment brine

#### Target Products (Produced)

- Potash (MOP/SOP/KMS)
- Lithium and magnesium salts
- Range of byproducts (B, Br, Ca, Co, Cu, I, Na, Ni, REE, Si, Sr)
- Reagents
- Water

## iBC™

### Brine Pre-Treatment Technology

#### Key Industries (Applications)

- Oil & gas waste brine (CSG)
- Wastewater treatment brine

#### Target Products (Produced)

- Sodium hydroxide concentrate
- Sodium chloride
- Byproducts (Ca, Mg, Si)

## About Parkway Minerals

In October 2019, Parkway Minerals (ASX: PWN) completed a transformational transaction by acquiring an Australian unlisted public company, Consolidated Potash Corporation (CPC). Through CPC, Parkway Minerals acquired a minority interest in the Karinga Lakes Potash Project (KLPP) in NT Australia. The CPC transaction, also resulted in Parkway Minerals acquiring the innovative aMES™ technology, which has been developed to process a range of challenging brine streams from the mining industry, in order to recover valuable minerals, reagents as well as produce fresh water.

Given the significant market opportunities, Parkway Minerals is focused on commercialising a world-class technology portfolio to provide long-term sustainable solutions for processing complex brines, in the energy, mining and wastewater industries. In order to achieve this objective, Parkway Minerals is partnering with leading industry participants to provide, BPaaS – Brine Processing as a Solution™.

### Strategic Investment

Parkway Minerals holds a strategic investment in Davenport Resources (ASX: DAV), which has successfully delineated a globally significant in-situ potash resource (in excess of 550 million tonnes of contained potash), at its South Harz project in Central Germany. Recently completed scoping studies have delivered excellent technical and economic results and provide Davenport Resources with an attractive opportunity to create and unlock substantial value.

Parkway Minerals is commercialising a world-class technology portfolio to provide long-term sustainable solutions for processing complex brines, in the energy, mining and wastewater industries.

Our mission is to collaborate with leading strategic partners to deliver:

**BPaaS – Brine Processing as a Solution™**

### Forward-Looking Statements

This ASX Release may contain certain “forward-looking statements” which may be based on forward-looking information that are subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. Forward-looking information includes exchange rates; proposed or projected project or transaction timelines; uncertainties and risks associated with the advantages and/or performance of the Company’s projects and/or technologies; uncertainties and risks regarding the estimated capital and operating costs; uncertainties and risks regarding any envisaged timelines in relations to any results, milestones, partnerships, including but not limited to any milestones which may require obtaining approvals from third parties.

For a more detailed discussion of such risks and other factors, see the Company’s other ASX Releases. Readers should not place undue reliance on forward-looking information. The Company does not undertake any obligation to release publicly any revisions to any forward-looking statement to reflect events or circumstances after the date of this ASX Release, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.