AUSTRALIAN
RESEARCH
INDEPENDENT INVESTMENT RESEARCH

Parkway Corporate (PWN)

June 2023

INDEPENDENT
INVESTMENT RESEARCH

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INDEPENDENT INVESTMENT RESEARCH

Parkway Corporate Limited (PWN)

June 2023 - Initiation

Note: This report is based on information provided by the Company as at June 25, 2023

Investment Profile	
Share Price - June 23, 2023	$0.009
Risked Base Case Valuation	$0.083/share
12 month L/H	$0.007/$0.014
Issued Capital:	
Ordinary Shares	2,227 m
Options	261 m
In-Money Options	0 m
Fully Diluted	2,488 m
Market Capitalisation - Undiluted	$20.0 m
Cash (31 March 2023)	$2.04 m

Board and Management
Mr Stephen van der Sluys - Non-Exec Chairman
Mr Bahay Ozcakmak - Managing Director and CEO
Ms Penelope Creswell - Independent Director
Ms Ayten Saridas - Independent Director
Ms Amanda Wilton-Heald - Company Secretary
Mr Robert Van der Laan - CFO

Major Shareholders	
BNP Paribas Noms (ACF Clearstream)	11.20%
Activated Logic (Bahay Ozcakmak)	9.83%
BNP Paribas Noms (Group #39797)	4.96%
Pan Andean Capital	4.67%
Top 20	48.00%
Board and Management	12.13%

Share Price Performance

The investment opinion in this report is current as at the date of publication. Investors and advisers should be aware that over time the circumstances of the issuer and/or product may change which may affect our investment opinion.

CRACKING THE CSG BRINE TREATMENT CODE

A key issue facing Australia's globally significant liquefied natural gas ("LNG") industry in Queensland is the treatment of brines produced from co-produced coal seam gas ("CSG") water. At present, these brines are stored in above ground ponds on an interim basis, whilst the industry investigates optimal ways to treat them, and dispose of any residual material.

Several methods have been reviewed and rejected, with the "last man left standing" being salt encapsulation which is a non-optimal solution, but is what the industry is facing, and which is presented here as the Base Case.

With an estimated production of 6 million tonnes of salt over the life of the operations this is a challenging and expensive issue, with potential total costs in the order of A$21 billion to treat current and future brine production - this includes up to ~A$4 billion in solids disposal and storage costs alone. Under Queensland Government legislation treatment solutions are required to be put in place by the operators, with this to use the best available technology ("BAT"), and, as far as practicable, convert waste to usable products thus minimising disposal.

Parkway Corporate Limited ("Parkway", or "the Company") believes that it has the technology, both developed in-house and acquired, with estimated life of operation costs of A$6.1 billion, and that the Company's technology has a reasonable chance of being the BAT.

The proprietary and patented processes produce pure water and saleable end products including sodium hydroxide, lime and industrial salt, with less than 2% of the treated material having to be disposed of. Including product sales (with company estimates of ~$2.5 billion), there are potential savings of >A$17 billion over the Base Case in Queensland, which should make it attractive to industry.

The technology has recently been confirmed through a successful feasibility study commissioned and funded by one of the major CSG producers, with brine samples being successfully treated using Parkway's technology portfolio, including the Integrated Brine Causticisation ("iBC®") process. This has been undertaken by Parkway's Process Technologies ("PPT") division in collaboration with the major engineering firm Worley (WOR: ASX) and Victoria University.

Parkway has recently released a conceptual commercialisation Master Plan for the Queensland opportunity, which will include formalised discussions with all stakeholders, from which will be developed the optimal commercialisation strategy.

However it is not only the issues in Queensland that the technologies have the potential to address - in Australia and globally target applications include treating mine and energy wastewater, municipal wastewater and desalination RO rejects amongst others - the Company sees global markets of over A$150 billion per annum.

Parkway also has an operating division, Parkway Process Solutions ("PPS"), a conventional water treatment business, providing equipment, services and integrated solutions. Although still quite small, with a past 12 month turnover of A$4.25 million (compared to A$2.32 in the previous corresponding period) at a healthy EBITDA margin of ~40%, this has been rapidly growing by internal growth and acquisitions over the two years that it has been in operation.

KEY POINTS

Significant royalty income - no capex: One potential commercialisation strategy includes licencing the technology, and being paid a royalty for use - this provides highly leveraged returns on development costs, and no requirement to raise the significant funds to develop facilities.

A solution to an existing global problem: This provides a ready made market, not only in the Queensland CSG industry, but in numerous waste water applications globally - it is not a product looking for a sale.

No viable alternatives to date: Despite significant efforts and investment, as far as we are aware, there are no advanced alternative technologies for effectively treating the Queensland gas field brines which convert them to close to 100% usable products.

Required by legislation: The CSG companies have no choice - the requirement is for them to treat the waste and produce usable products - disposal is an option only if this is not feasible.

Significant cost benefit: Parkway's technology potentially provides a major cost benefit to the Base Case, which should make it an attractive proposition for the gas producers.

Valuation: We have a base case, risked valuation of A$0.083/share for Parkway. Key catalysts in the price include material progress towards the commercialisation of the Company's technologies, initially in the Queensland CSG fields.

SWOT ANALYSIS

Strengths

- **Disruptive technology:** Parkway's technologies can be considered disruptive, and if shown to be able to be commercially developed should have wide appeal.
- **Competition?:** We are not aware of other entities that have successfully treated CSG residual brines to usable products to the extent of Parkway's work, however there is other published work that presents the results of studies that have not been successful in these aims.
- **Flexible:** The technology has been shown to be able to successfully treat a range of brine compositions, which is an important factor in any commercialisation, where the character of the brines will change. The Queensland CSG brines have a wide range of dissolved solid compositions. A lack of flexibility was a major issue with the selective salt recovery ("SSR") approach previously investigated by industry.
- **Low cost:** Parkway's estimates indicate that the technology comes at a significantly lower cost than others out there.
- **Leveraged earnings:** Should a licencing approach be made to commercialisation, royalties earnings are strongly leveraged, and do not require large sums of capex (and shareholder dilution).
- **Growing field:** There is a current major requirement to treat existing industrial, municipal, mining and oil and gas wastewater amongst others, which will only grow in the future .This is in response to water shortages, and the community expectation (and ESG requirements) of green and ethically sound operational practices.
- **Company personnel with skin in the game:** This aligns their interests with other shareholders, and thus is a strong inducement to success.

Weaknesses

- **Unproven commercially:** Although they have demonstrated potential at bench and pilot scale, the technologies have yet to be run on a commercial scale. On the flip side the scale up from bench to pilot scale has been successful, and the work to date has given the Company a firm basis to estimate operating and capital costs for commercially sized plants.
- **Base Case scenario costs:** These have been estimated from a limited database that doesn't include firm, as constructed costs, and hence there may be considerable uncertainty in them, thus affecting the calculated cost advantage in the Parkway process, and hence valuations.

Opportunities

- **Commercialisation and significant growth:** This is the main opportunity for the PPT division, with expansion and growth being the main opportunity for the PPS division.
- **Development of new technologies and refinement of existing technologies:** The company has a strong R and D team, as well as the collaboration with other parties and institutions, which should allow for the ongoing refinement and adaptation of existing technologies, and the development of new ones.

Threats

- **Non-adoption:** Non-adoption of the Company's technology in the Queensland CSG fields is the key threat, which would flow on to other commercialisation opportunities. The planned operations are binary, in either they are adopted or not.
- **Successful scale up:** This is a perennial threat to any new technology, however the Company does have experienced team members with EPC backgrounds, as well as the partnership with Worley - these factors should provide comfort to clients.
- **Product quality and pricing:** Parkway's Master Plan relies on being able to sell, or otherwise use all solid products from the planned processing - although sales prices have a relatively low impact on the overall practicability and financial viability of the plan, should any products prove to be non-usable (although the results of the Feasibility Study suggest otherwise) this will add to disposal costs, and affect the overall viability of the processes.
- **Markets and funding:** This is an always present threat to any junior company, however Parkway does have some funding through the PPS division, as well as a relatively low cash burn.

OVERVIEW

STRATEGY AND MARKETS

- Parkway's strategy is to build an advanced water treatment technology company, with two main streams (and three divisions) - a primary operating stream providing largely off the shelf (conventional) water treatment products, solutions and services, and a second focussing on the development and commercialising of innovative and disruptive water processing technologies (Figure 1).

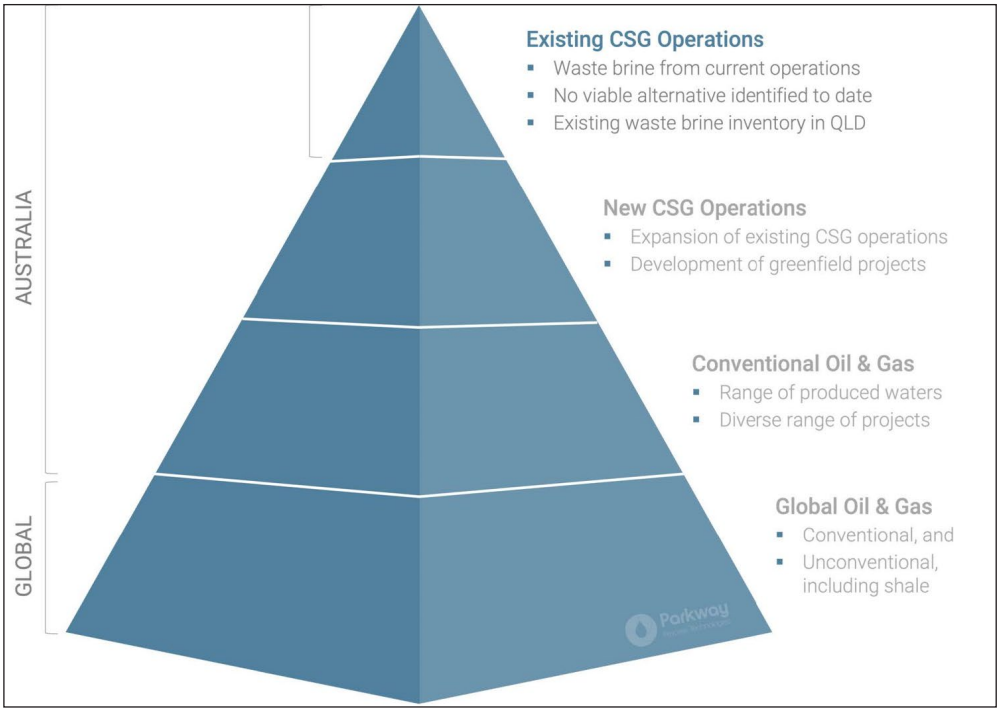
Figure 1: Parkway Corporate structure

Source: Parkway

- The two main streams are:
  - Parkway Process Solutions ("PPS") - delivery of water processing systems and services, largely using conventional technologies (effectively a specialised industrial and solution operation); and,
  - Parkway Process Technologies ("PPT") - development of innovative and disruptive water processing solutions through the Primary Technology Division, with this then commercialised through licencing of the IP, and subsequent collection of royalties payable on earnings from the use of the technology, else other commercialisation options.
- Parkway, through PPT owns a portfolio of proprietary technologies, with the three key ones being:
  - Activated Mineral Extraction System - aMES® - developed by Activated Water Technologies ("AWT",) involves the treatment of concentrated aqueous solutions to recover a range of valuable minerals, reagents and fresh water,
  - Integrated Brine Causticisation - iBC® - acquired in 2020, removes a range of impurities from brine streams to enable further processing; and,
  - Upstream Brine Beneficiation and Concentration Technology, developed in-house for the pre-concentration of brines prior to treatment by the other technologies.
- A key strength of licencing is that it requires only limited capital expenditure in the R & D of technologies with no requirement to build the operating plants, and with royalty earnings being relatively low risk, certain and highly leveraged cash flows.

- The Company has identified very large global addressable markets that will require the increasing use of conventional and innovative water treatment solutions to allow for the recycling of, and/or safe disposal of wastewaters, which will require the effective removal of contaminants, including salts, organic materials and others.
- This includes the trend to zero liquid discharge ("ZLD") of waste materials in some sectors, meaning that all water is recycled and waste is recovered in a solid form.
- Three main global markets for wastewater treatment identified by Parkway include:
  - Mining and energy (>A$15 billion/yr),
  - Industrial wastewater (>A$100 billion/yr); and,
  - Municipal and desalination (>$25 billion/yr).
- Actual and potential opportunities in the energy (oil and gas) sector for the iBC technology are shown in Figure 2).
- The current focus of the PPT business is the treatment of coal seam gas ("CSG") co-produced water in Queensland, which forms the apex of the value chain shown in Figure 2.

Figure 2: Global oil and gas opportunities



Source: Parkway

THE QUEENSLAND CSG WATER OPPORTUNITY & MASTER PLAN

- A core focus over the past few years has been in working with several CSG producers on a solution to treat CSG co-produced water and brines in the Queensland CSG fields - this has also been in association with Worley as a global strategic partner.
- A conceptual Master Plan has been developed by the Company with relation to the entire Queensland CSG water treatment opportunity, for which a technically and economically viable treatment solution has otherwise yet to be found.
- The Master Plan involves the use of the Company's proprietary technology, which was successfully demonstrated in a feasibility study undertaken in association with a major Queensland CSG producer, in addressing the treatment of the brines, and aligns with government priorities and regulations.
- On June 22, 2023, the Company released the Master Plan to the market, with this including an economic comparison of the current Base Case (including both salt encapsulation "SEF" and selective salt recovery "SSR", approaches, discussed later) and an operation utilising four integrated treatment hubs using the Company's proprietary technology to treat current and future CSG brines - a summary of the financial results is shown in Table 1.
- Parkway's Master Plan includes the treatment of the industry wide CSG co-produced brines, including those currently stored in the 36 brine dams and all future production - benefits of the Master Plan concept include:
  - Avoiding the disposal of approximately 6,000,000 tonnes of waste salts into landfill,

  - Eliminating enduring environmental risks associated with salt encapsulation (the Base Case),
  - Significantly lower capex and opex (estimated to be less than 30% of the Base Case),
  - Production of significant quantities of industrial chemical products from waste salts; and,
  - Generation of substantial revenues, as opposed to disposal costs in the Base Case.
- The Parkway Master Plan envisages four downstream hubs, utilising the Company's iBC® and other technologies to treat brines pre-concentrated through upstream plants utilising a more efficient and lower cost pre-concentration technology.
- A comparison of the Base Case and Parkway processing routes is shown in Figure 3, with a conceptual hub layout shown in Figure 4.
- The Company also has developed technologies to further treat the low quantity of waste from the planned processing, although these have not been included in the economic analysis.
- Details of the technologies are discussed later.

Table 1: PWN Master Plan economic analysis - A$m

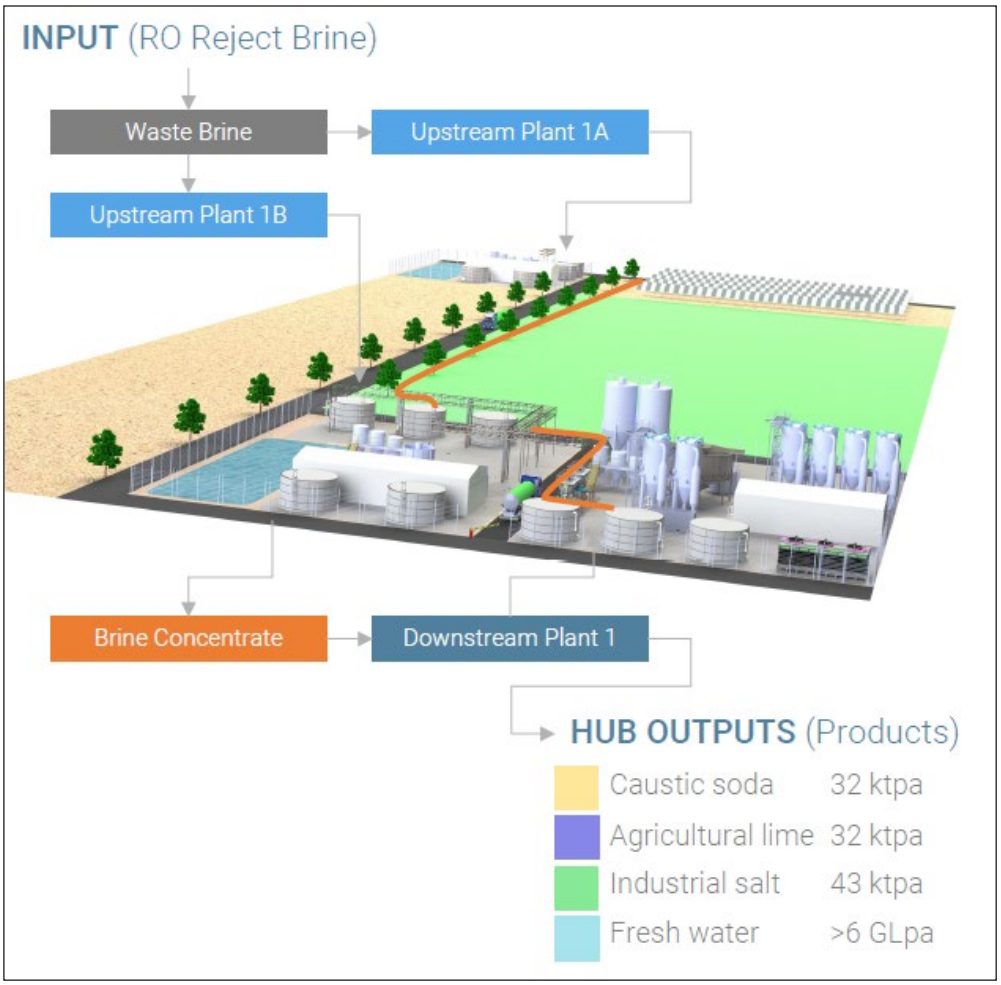
PWN Msster Plan economic analysis - A$m			
Cost/Revenue	**PWN Master Plan Release Figures**		
	SEF	**SSR**	**Parkway - QBS**
Capex	$9,030	$8,800	$1,560
Plant Opex - Annual	$471	$542	$192
Transport Opex - Annual	$54	$50	$31
Waste Disposal Costs - Annual	$95	$19	$3
Revenue Generation - Annual	$0	$25	$129
Total Opex - Annual	$620	$611	$226
LoM Opex	$12,400	$12,220	$4,520
LoM Revenue	$0	$500	$2,580
Total Costs	$21,430	$21,020	$6,080
Net Costs	$21,430	$20,520	$3,500
Net Benefit to PWN	$17,930	$17,020	-

Source: Parkway

Figure 3: Base Case vs Parkway brine treatment processing

Source: Parkway

Figure 4: Conceptual treatment hub - also shows expected annual production from each of four hubs



Source: Parkway

- A separate entity, Queensland Brine Solutions Pty Ltd ("QBS") has recently been set up as a dedicated commercialisation entity to advance the aims of the Master Plan.
- Under the "Coal Seam Gas Water Management Policy 2012", and reiterated under the "Coal Seam Gas Brine Management Plan 2023 - 2033" CSG project operators are required to ensure that "brine or salt residues are treated to create usable products wherever possible."
- Currently, residual concentrated brine, and RO plant brine rejects, are stored in regulated storage dams, following a 2018 review, undertaken by the Australian Petroleum Producers and Explorers Association ("APPEA") into different disposal and treatment options concluding that the only realistic (but not optimal) solution is salt encapsulation, and for which the producers have been looking to develop.
- Although reluctantly accepted by the industry, salt encapsulation is an expensive and unpopular solution - Parkway has subsequently reported that it has broken the CSG brine treatment code using the proprietary technologies with this being the only publicly released current viable alternative to the encapsulation.
- In addition to the operational cost of salt crystallisation and encapsulation, there is also a Queensland government A$175/tonne (indexed to inflation) waste disposal levy on regulated facilities - this, on 6,000,000 tonnes of salt, adds an additional ~A$1 billion impost on industry.
- Our modelling indicates a >$17 billion advantage to Parkway in this market - this figure is in line with Parkway releases.
- Parkway is actively dealing with stakeholders, including the gas producers, governments, potential product customers amongst others, as well as working closely with strategic partners including Worley and Victoria University, in progressing the development plans.
- Experienced Executive Mr Mike Hodgkinson has recently been appointed as Chief Commercial Officer to lead the commercial opportunities under the Master Plan.

FINANCIAL POSITION

- As of March 31, 2023 the Company had A$2.04 million in cash and no borrowings.
- Parkway has raised a total of ~A$10 million since the acquisition of CPC in late 2019 - the most recent capital raising was a placement of A$5.248 million through the issue of 291.6 million shares at A$0.018/share in Q1, CY21.
- The Company has also received gross sales of A$6.567 million through PPS, offset by the COGS and inventory buildup of A$4.047 million, a gross margin in the order of 40% - net sales in the March, 2023 quarter was A$0.508 million, on gross sales of A$1.283 million.
- Even including the net contribution from sales by PPS in the order of A$2.5 million, this shows a low overall cash burn in the order of A$2.5 million pa, which shows a good "bang for buck" in advancing the Company from September 2019 until the present.
- The figure includes acquisitions in the order of A$2 million, and R & D, which, in FY22 was estimated to be ~A$1 million.

CAPITAL STRUCTURE

- Parkway currently has 2,227 million shares and 260.9 million unlisted options on issue - the options have exercise prices of A$0.019 (246.9 million) and A$0.020 (15 million), expiring on July 28, 2024 and December 12, 2024 respectively.
- The top shareholder at ~11.2% is BNP Paribas Nominees, with the second top being Activated Logic (the entity through which Mr Bahay Ozcakmak and family own shares in the Company) at 9.83%; the Top 20 hold 48%.
- Board and management hold 12.13%, with most senior staff also being shareholders - this aligns their interests with that of other shareholders and provides a strong incentive in developing a successful business.

HISTORY

- Parkway as it stands now has come about through the September 2019 acquisition of 100% of Consolidated Potash Corp. ("CPC"), a public unlisted company that owns the Activated Mineral Extraction System (aMES®) water treatment process and IP through Activated Water Technologies ("AWT") - Mr Ozcakmak, Parkway's Managing Director and CEO, was the founder of AWT, and CEO (and 44.52% shareholder) of CPC at the time of the transaction.
- aMES® was developed with the assistance of, and through a strategic collaboration with Victoria University, with the process being initially developed to extract K, Li and other minerals from brines; the Australian Research Council ("ARC") also provided financial support.
- Parkway (then Parkway Minerals) owned the Dandaragan Trough potash project in WA, and had developed the K-Max® process to extract potassium and other minerals from the micas that host the potassium at Dandaragan Trough - K-Max® is a similar technology to the L-Max® process developed by Lepidico (ASX: LPD) to extract lithium from micas amongst others.
- The various processes were considered complementary, with the ability to treat both brines and minerals, with potential synergies between the companies.
- CPC also held stakes in the Karinga Lakes Potash Project ("KLPP") in the NT, and the New Mexico Lithium Project in the USA - the latter has been divested, with Parkway still holding a 40% working interest in the KLPP - given the focus on the technology business, the KLPP won't be discussed further.

PPT - PARKWAY TECHNOLOGY SOLUTIONS & VENTURES

BACKGROUND

- PPT is the technology development and commercialising arm of Parkway, with, as illustrated above, two divisions:
  - Primary Technology Division, which develops and holds a portfolio of innovative and patented technologies; and,
  - Primary Investment Division, charged with the leveraged commercialisation of the technologies through licencing and thus the receipt of royalties; this division will also look at owning and operating facilities using the technologies.
- The current focus is on the Queensland CSG Master Plan, with this to be run through QBS.

TECHNOLOGIES

- PPT owns three main technologies:
  - aMES®,
  - iBC®; and
  - Upstream Brine Beneficiation and Concentration.
- The Company is looking at standalone applications, as well as integrated applications of the technologies to provide integrated wastewater treatment solutions.

aMES® Technology

- The aMES® technology, as mentioned earlier, was developed by AWT, and incorporates several elements into an integrated flowsheet to dewater highly concentrated solutions, and to concurrently recover fractionated products.
- The technology has several potential applications, including recovering minerals (e.g. lithium and potassium) from natural brines, dewatering, and recovering wastes and metals from downstream processing waste and other wastewaters, and dewatering and recovering minerals from co-produced water in the energy sector.
- This was the subject of a Pre-Feasibility Study ("PFS") on the KLPP, with the development of a pilot plant, and the Company, in May 2020, signed a Global Strategic Co-operation Agreement with Worley to commercialise the technology.

Upstream Brine Beneficiation and Concentration

- The development of this technology has been announced only recently, with the application to be the pre-concentration of CSG waste brines prior to treatment using the downstream iBC® plants - the overall package is suitable for the treatment all Queensland CSG RO brine rejects.
- The technology will provide initial concentration of RO brine rejects, that have a salinity in the order of that of seawater, by around 3x, with a resultant 70% decrease in volume of material that will then be transported, and treated in the downstream iBC® plants.
- This will allow for a significant decrease in capital and operating costs compared to that of the previously investigated SSR and SEF plants, through having to treat and transport ~70% less material than would be the in the Base Case.
- It is envisaged that the upstream plants will be located at the main brine ponds, with the pre-concentrated brines then transported to centralised downstream iBC® plants.

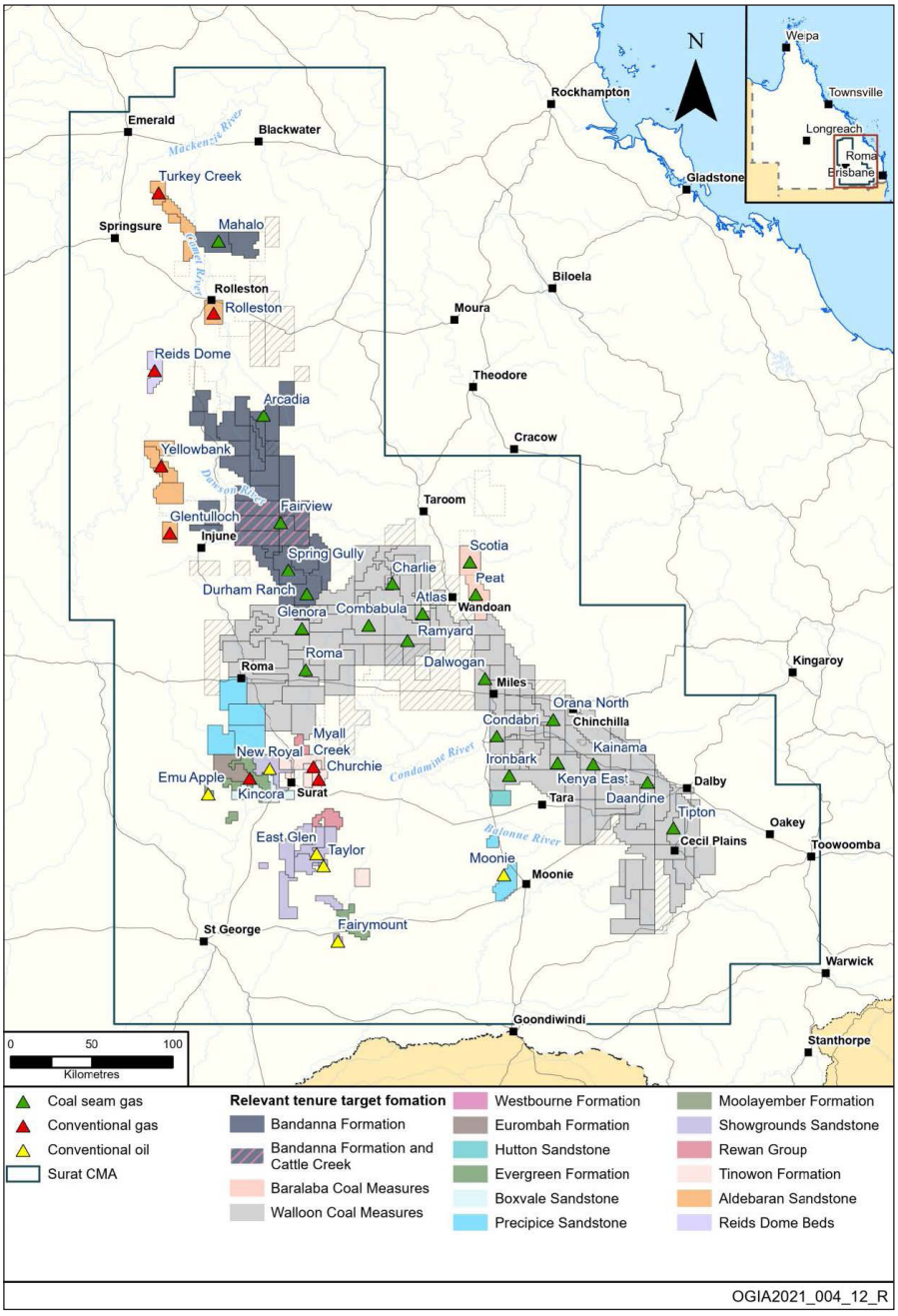
iBC® Technology

- The iBC® (Integrated Brine Causticisation) technology was acquired by the Company, and includes several proprietary elements to remove common impurities from waste brine streams, with the purified brine stream then being treated to allow the production of various salt products and industrial grade sodium hydroxide.
- The terms of the acquisition included a royalty payable to the vendor, however this also includes a royalty buyback option.
- It is this technology that has been the core component of the recently competed feasibility study to treat CSG brines (discussed further below).
- Initial testwork was done on 300 mL samples with various chemistries, with this then successfully scaled up to bench scale (7.5 - 12.5 L) samples.
- Most recently a pilot plant successfully treated a 1,000 L bulk sample, highlighting that the process is potentially scalable to a commercial size, a vital consideration in any innovative and previously un-commercialised chemical treatment process.
- During 2022 the Company announced that it had made several breakthroughs in treating CSG brines using the technology, and that it had delivered a usable product recovery of >98%, with the products including caustic soda (NaOH), industrial salt (NaCl), agricultural lime ($CaCO_3$) and high purity, deionised water.
- One benefit of the technology is that it has been shown to be able to treat, and produce usable products, from a wide range of brine compositions, unlike conventional SSR technologies which the APPEA report concluded are generally restricted in what they can effectively treat.
- Another benefit is that it has been shown to produce high purity, saleable products, particularly sodium hydroxide - SSR has produced lower quality and lower value products.

THE QUEENSLAND CSG INDUSTRY - A BACKGROUND

- Queensland CSG is a nationally significant industry, with, in addition to supplying the domestic markets, produces some 25 Mtpa of liquefied natural gas ("LNG") to international markets, and which generated >A$25 billion in export revenue in 2022.
- There are three LNG producers, which have invested over $80 billion in developing the LNG upstream and downstream facilities:
  - Queensland Curtis LNG ("QCLNG"), 8.5 Mtpa LNG, led by Shell, with CNOOC having 50% equity in Train 1, and Tokyo Gas having 2.5% equity in Train 2,
  - Australian Pacific LNG ("APLNG"), 9 Mtpa LNG, led by ConocoPhillips with a 37.5% ownership, with Origin holding 27.5% and Sinopec 25%; and,
  - Gladstone LNG ("GLNG"), led by Santos with 30%, and other equity holders including PETRONAS (27.5%), Total (27.5%) and KOGAS (15%).
- The three LNG facilities, each of two trains, are located on Curtis Island near Gladstone in Central Queensland, with feedstock being sourced from the Surat and Southern Bowen Basins, centred around the town of Wandoan, some 300 km as the crow flies SW of Gladstone (Figure 3).
- The CSG gasfields trend for a distance of some 300 km SE to NW (Figure 5).

Figure 5: Location of major gasfields in the Surat CMA, including geology of the gas producing areas



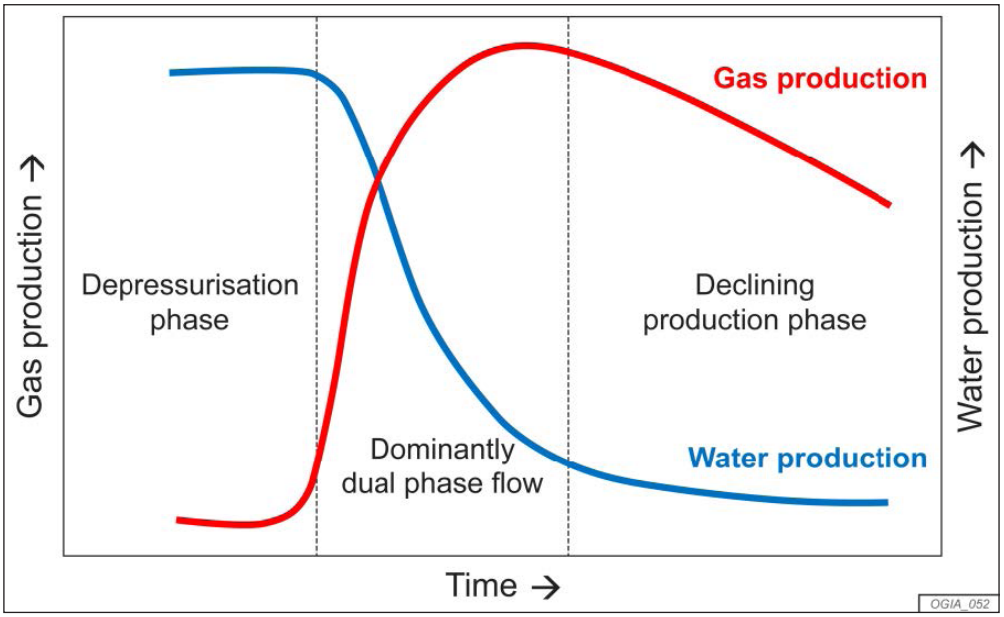
Source: Status of coal seam gas and conventional petroleum and gas development in the Surat CMA, Qld Office of Groundwater Assessment, 2021

- The gas is compressed and piped from the gasfields (which are located in what is termed the Surat Cumulative Management Area "Surat CMA") to the LNG plants at Gladstone.
- In addition to gasfields operated by the three LNG producers, other, smaller fields are operated (and also under further development) by Arrow Energy (50% owned each by Shell and PetroChina), Senex Energy (owned by a subsidiary of POSCO - 50.1% and Hancock Energy Corporation - 49.9%) amongst others.
- Gasfield infrastructure includes amongst others:
  - >8,600 producing and past producing CSG wells,
  - Gas treatment, compression and pipeline facilities,
  - CSG water storage facilities,
  - Water treatment facilities (largely including RO plants, and in the case of Shell, RO and brine concentration plants; and,
  - Brine storage dams (current installed capacity of 20,811 ML, with 67.24% or 13,994 ML in use as of March 2023 in 36 dams).

Managing CSG Water - the Key Environmental Issue

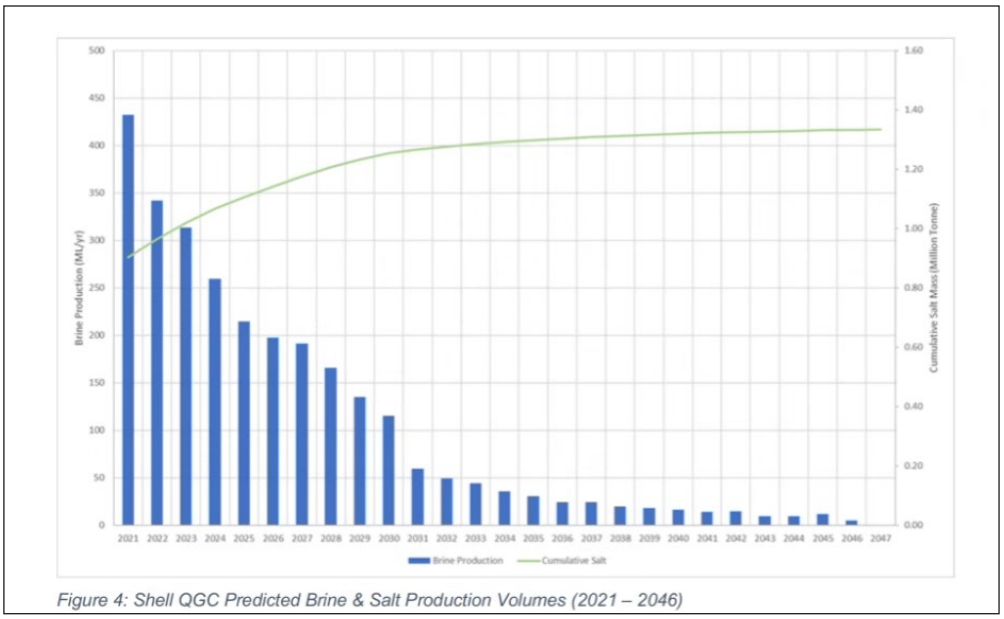
- The Queensland CSG fields are characterised by high water contents, with these currently producing some 55 GL of co-produced water per year, and having produced over 400 GL from the commencement of commercial production in 2015 until present.
- The water is mildly salty (generally with a range of ~500 mg/l to ~4,000 mg/l, with around 6,000,000 tonnes of salt expected to be extracted in the CSG water during the life of the current projects - a later review has this at ~5,000,000 tonnes, 1/3 of the 15,000,000 tonnes of contained salt estimated in 2012 prior to the commencement of the projects.
- It needs to be noted that there is some uncertainty in the amount of water, and salt that will eventually be extracted.
- However, as the fields mature, the amount of co-produced water tails off (Figures 6 and 7), and is estimated that around half of the total water and salt has now been extracted.
- In 2018 APPEA estimated total water production of 2,346 GL, containing 6.1 Mt of salt, for an average salinity of 2.6 g/l.

Figure 6: Indicative CSG well production profile



Source: Status of coal seam gas and conventional petroleum and gas development in the Surat CMA, Qld Office of Groundwater Assessment, 2021

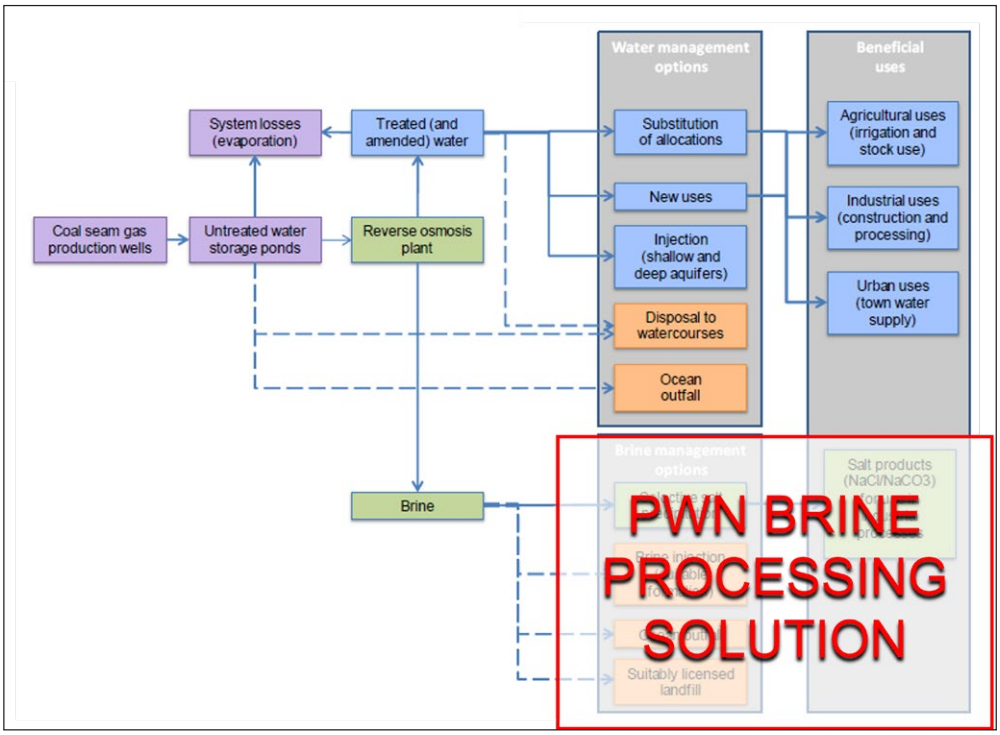
Figure 7: Shell QGC predicted brine and salt production volumes (2021 - 2046)



Source: Shell QGC Water Management Annual Report 2022

- Treatment of the co-produced water is a key task in the CSG projects, with, at as of now, the water being treated through reverse osmosis plants, with the brine RO rejects being stored in brine ponds.
- The RO process recovers between 85% to 90% of the water, which is used for various applications, including agriculture, industrial uses and being re-injected back into aquifers (Figure 8).
- Both fixed and mobile RO plants are used.
- The reject brines have salinities in the order of 25,000 mg/L, similar to that of seawater.

Figure 8: Current water management process - Arrow Energy



Source: Arrow Water Management Strategy

https://www.arrowenergy.com.au/__data/assets/pdf_file/0006/28716/Attachment2000920-20Coal20Seam20Gas20Water20Management20Strategy.pdf - downloaded June 2, 2023

- Shell, at the QGLNG Project goes one step further in the two main water treatment plants, in that the water is further treated using brine concentration to around 3% of the original volume coming from the wells, with the concentrated brine having a salinity in the order of 260 g/l, or 26% (Figure 10).

- It is the treatment of these residual brines that has been problematic, however under Queensland legislation these will have to be treated, with residual material disposed of in regulated facilities during the life of the projects unless beneficial treatment is achievable.
- One aim of the disposal is for it to be zero liquid discharge ("ZLD"), with all water recovered and all waste being solid.
- Around A$100 million has been spent on studies assessing options for the treatment of the residual brines, with a final report completed by APPEA in 2018, and peer reviewed by the University of Queensland.
- These studies, undertaken by the various operating companies in association with APPEA, considered the following options:
  - Selective salt recovery,
  - Ocean outfall,
  - Brine injection; and,
  - Salt encapsulation.
- Although none of the options were ideal (or in some cases practical), the most suitable was considered to be SSR, but when production risks and a high capex was considered, salt encapsulation was considered the most viable, but still not ideal or optimal.
- All are costly, with costs including, for salt recovery and salt encapsulation, the Queensland Government's A$175/tonne waste disposal levy, which is indexed at the rate of inflation.
- Following the APPEA review, Shell QGC planned to have the first salt crystallisation plants and encapsulation facilities in operation by 2027, however subsequently have delayed this, given that alternative technologies (possible including PWN's) are now being considered.

The Parkway Solution

- Parkway (and partners) has been investigating the treatment of CSG brines for over a decade, with this being accelerated since acquiring the rights to the iBC® process in 2020.
- This aims to treat the waste brine streams, recovering over 98% of already highly concentrated brine (in some cases already concentrated by 97%) to saleable and/or usable materials - this includes current brines and those yet to be produced.
- Two main process routes will be required:
  - Treatment of already pre-concentrated brines (i.e. Shell) will require just the downstream plants,
  - Treatment of RO reject brines will include the use of the upstream pre-concentration plants (using the recently disclosed "Upstream Brine Beneficiation and Concentration" technology, transport of the pre-concentrated brines and then treatment by centralised iBC® plants; and,
  - As mentioned earlier the upstream facilities reduce the volume by ~70%, and thus increase the salinity by ~3x.
- The proposed treatment route has several benefits (Figure 9):
  - It is cost effective - the Company estimates that capital and operating costs are ~70% lower than the encapsulation case,
  - In addition cash is generated by the sale of the high purity products (Figure 10), with the Company estimating sales of these totalling A$430/tonne of salt treated, or ~A$2.58 billion,
  - The products are expected to be high quality, and be readily saleable into the top end of their respective markets,
  - Does not require the expensive encapsulation of large amounts of solid salts - the estimated costs for this is ~A$600 - $700 per tonne of solid material processed, including the A$175/tonne waste disposal levy, which, given an expected 6 Mt of salt, results in an overall disposal and storage cost of ~$4 billion; and,
  - In addition to the cost of salt encapsulation, there are legitimate environmental concerns around the long term storage of the material, and there would be little acceptance by communities to hosting such facilities.
- It is possible that Parkway's technology is the only potentially viable alternative to the Base Case, and thus Parkway is in a reasonable position to own the BAT, and thus commercialise the technologies into a very large market.
- We have not come across any other similar and readily publicly visible alternatives in our background research.

Figure 9: Comparative analysis

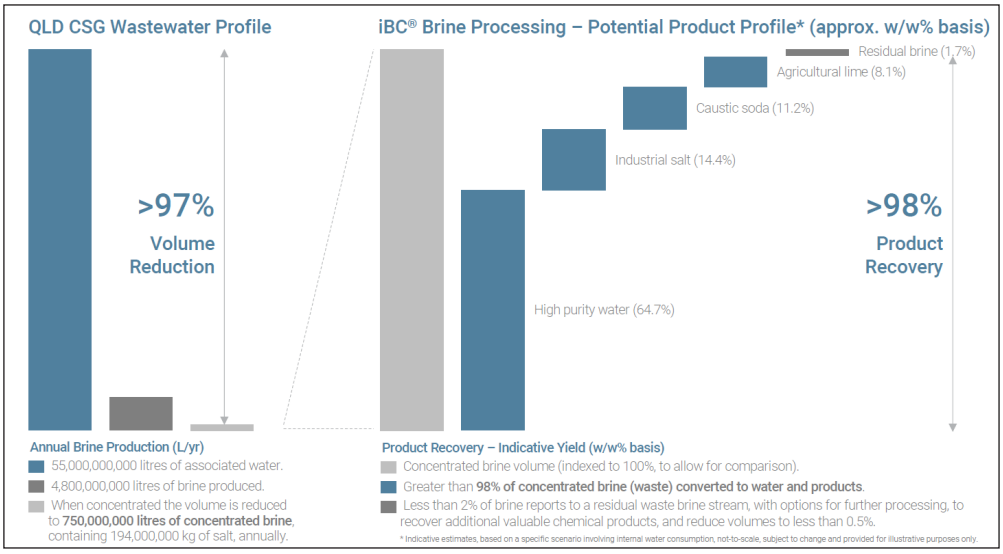
	Alternate (SSR) Salt Recovery Processes	Salt Encapsulation (SEF) Approaches	Proprietary (QBS) Processing Route
Overview	Range of historical "selective salt recovery (SSR)" approaches considered, mostly a decade ago. **Considered "most suitable" option".**	Involves crystallising brine into mixed salt form and encapsulating it for long-term storage in purpose built cells. **Considered "most viable" option".**	Highly innovative proprietary flowsheet that transforms majority of waste brine & salt into saleable industrial products. **Intrinsically superior option.**
Environmental Metrics	✗	✗ ✗ ✗	✓ ✓ ✓
Solid Waste Profile	Only a fraction of salts are recovered	All of the salts are disposed	>98% of salts are recovered
Liquid Waste Profile	No liquid products are recovered	No liquid products are recovered	>98% of liquid recovered as product
Ongoing Monitoring	Residual waste streams are significant and require disposal and monitoring	Waste salt cells require >150 yr design life & requires ongoing management	As vast majority of wastes are recovered - residual waste is minimal
Social Metrics	✓	✗ ✗ ✗	✓ ✓ ✓
Social License	Infrastructure investment delivering partial solution is a poor outcome	Creates range of social-license related challenges impacting project viability	The sale of products eliminates the vast majority of long-term liabilities
Freedom to Operate	Sets poor precedent about resource custodianship and utilisation	Long term management & monitoring of waste facilities is highly undesirable	Provides freedom-to-operate by adopting best-available technology
Financial Metrics	✗ ✗ ✗	✗ ✗ ✗	✓ ✓ ✓
Project Revenues	Generates limited revenues from low-value products – must pay levies	Does not generate any revenues and instead must pay waste levies	Substantial revenues from sale of industrial-grade solid & liquid products
Project CAPEX	Extremely high plant costs	Very high sustaining CAPEX	Modest CAPEX - productive capital
Life of Project	Prohibitive CAPEX to produce limited revenue is poor investment option	Substantial ongoing disposal and levy costs are highly problematic	Revenues fund waste treatment – thereby saving waste disposal costs

*- As outlined in the, Queensland Government, *Coal Seam Gas Brine Management Action Plan 2023-33*.

Source: Parkway

- The technology has been tested on brines from several operators, with the Company recently completing a ~A$0.62 million Feasibility Study funded by the largest operator in the market:
  - The contract was awarded in April 2022,
  - It involved evaluating the feasibility of treating waste brine generated by the operator's CSG operations,
  - It involved collaboration with long term partners Victoria University and Worley; and,
  - Was successfully completed in early 2023, with the work including pilot-scale (a bulk 1,000 L sample) testing.
- Figure 10 shows the estimated mix of products from recent studies - should the technology be successfully commercialised this mix will change with changes in the dissolved salt concentrations in brines from different areas.
- However, the main products will still be high purity industrial salt, caustic soda, agricultural lime and purified water, with a minor amount of residual brine, making up <2% of the final products from the treatment of the already pre-concentrated brines.

Figure 10: iBC® product mix



Source: Parkway

- What needs to be noted is the caustic soda product is a 50:50 wt% aqueous product (the highest commercially available concentration), and therefore the actual product tonnages are greater than the dissolved tonnages to account for the water included in the caustic soda, as well as other materials added during processing, including through various chemical reactions.

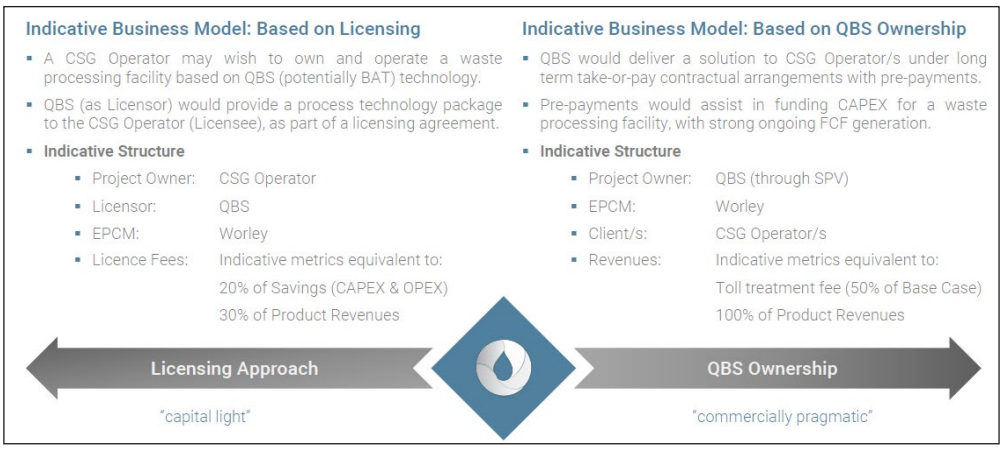
Process optimisation

- Parkway is also investigating further downstream optimisation processes to add value, although these are not included in the economic analysis as presented in the Master Plan.
- In summary, these include:
  - Chemical fractionation of the waste brines to produce muriate of potash (KCl) and halogens (Br, K, I); and,
  - Treating high purity brines by the chlor-alkali process to produce chlorine gas, hydrogen gas and additional caustic soda.
- Further details are presented in the Company's June 22, 2023 presentation.

COMMERCIALISATION STRATEGY

- The Company's commercialisation strategy is subject to the recently released Master Plan, with several alternatives being considered, and with the company in active talks with key stakeholders.
- As mentioned earlier the Company has now appointed a Chief Commercialisation Officer and set up QBS as a separate, but wholly owned entity.
- Commercialisation strategies may include amongst others:
  - Straight out licencing of the technology, with the receipt of a royalty, possibly around 20% of the cost savings in using iBC® over the salt encapsulation option and receiving 30% of the product revenue,
  - Fund and build plants, possibly in partnership with a major waste treatment group, and then toll treat the brines; and,
  - Licence and collect royalties from third party operators, who would build and operate the plants.
- Two alternatives are shown in Figure 11.

Figure 11: Commercialisation options



Source: Parkway

PPS - PARKWAY PROCESS SOLUTIONS

- This is a relatively new business venture, having been launched in July, 2021, and which operates for the Company's head office in Melbourne, Victoria.
- The aim of the business is to provide integrated water treatment products and services, with the Company building an inhouse team and inventory.
- On a broader strategic level PPS, with its customers including miners and energy companies, provides the broader Parkway group an entry into these companies, that have the potential to use the PPT technologies in the longer term.
- PPS has gained the distribution rights to multiple lines of products associated with water treatment, and is also developing integrated water treatment solutions inhouse.
- Aquisitions are also part of the growth strategy, which have included Multi-wet, a Western Australia water treatment business that was bought for A$420 k in early 2021.
- A second acquisition was Mawpump for the consideration of up to A$1.3 million (before agreed adjustments) in September 2021.

- Mawpump is a Darwin based firm, largely providing pumping and mine dewatering equipment to the Northern Territory mining industry.
- In the 12 months to March 31, 2023, PPS had sales of A$4.248 million, with a cost of goods sold of A$2.691 million, an EBITDA margin of ~35%
- Revenue grew 83% from that of A$2.319 million in the 12 months ending March 31, 2022, with the COGS being A$1.383 million, not including the costs of the business acquisitions.

IIR ANALYSIS AND VALUATION

SUMMARY AND OVERALL VALUATION

- We have undertaken a valuation of Parkway, with results as shown in Table 2.
- The valuation includes:
  - DCF valuations of 20% royalty streams from four separate CSG brine treatment plants in Queensland as part of the QBS operations,
  - A head office cost DCF valuation, based on A$2.5 million per annum, out to the end of the brine operations (2051),
  - A valuation of the PPS business - we have assumed an aggressive YoY growth of 40% over 10 years, and a gross margin of 40% as is the current case; and,
  - Cash.
- The base case, with a 20% royalty, results in a risked valuation of A$0.083/share, ~8 x the current price - we note that this is at a discount to the 20% royalty on cost savings and a 30% share of product sales as presented by the Company, however we have erred on the side of caution here.
- All business valuations are before tax, and we have used a real discount rate of 8%.
- Taxation will depend upon how the entities are structured, as well as what past losses would become available to offset future taxation liabilities.
- We have not considered any royalty sharing arrangements with strategic partners, including Worley.
- Our PPS valuation goes out to 2032 (10 years), at which stage our growth profile gives it an EBITDA of ~A$33 million, implying a longer term valuation of A$330 million using a 10 x EBITDA multiple (refer to Table 3).
- The overall valuation needs to be considered as indicative only, due to inherent uncertainties in particularly the proposed QBS business (including whether it will be accepted or not), but despite this comment, we see considerable upside in PWN in the medium term

Table 2: Valuation summary

Valuation summary - 20% QBS Royalty					
	After Tax NPV	**Risk Multiplier**	**Risked NPV**	**Risked per Share**	**Unrisked per Share**
QBS Royalties @ 20%					
Plant 1 Royalty	$148.57	20%	$29.71	$0.013	$0.067
Plant 2 Royalty	$385.53	20%	$77.11	$0.035	$0.173
Plant 3 Royalty	$315.39	10%	$31.54	$0.014	$0.142
Plant 4 Royalty	$255.38	10%	$25.54	$0.011	$0.115
Total QBS Royalty	$1,104.86	15%	$163.90	$0.074	$0.50
Head Office	-$29.52	50%	-$14.76	-$0.007	-$0.013
Treatment Solutions	$66.29	50%	$33.14	$0.015	$0.030
Cash	$2.00	100%	$2.00	$0.001	$0.001
Total Base Case	**$1,143.63**	**16%**	**$184.28**	**$0.083**	**$0.514**

Source: IIR Analysis

- Table 3 presents a conceptual profit and loss table based on our modelling - figures have been escalated Y on Y at the long term Australian CPI rate of 2.5%.
- We have also included potential company valuations down the track using standard multiples - note that this is not risked.
- Figures are based on a consolidated basis, although any further company structure is still not ascertained.

Table 3: Indicative earnings and multiples - escalated at 2.5% pa

Indicative earnings and multiples - escalated at 2.5% pa							
Year	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Revenue							
Sales - PPS	$4.00	$5.74	$8.24	$11.82	$16.96	$24.34	$34.93
Royalty Receipts	$0.00	$0.00	$0.00	$19.01	$19.48	$80.41	$82.42
Total Revenue	$4.00	$5.74	$8.24	$30.83	$36.44	$104.75	$117.35
Costs							
COGS - PPS	-$2.40	-$3.44	-$4.94	-$7.09	-$10.18	-$14.60	-$20.96
Head Office Costs	-$2.50	-$2.56	-$2.63	-$2.69	-$2.76	-$2.83	-$2.90
Total Costs	-$4.90	-$6.01	-$7.57	-$9.78	-$12.94	-$17.43	-$23.86
EBITDA	-$0.90	-$0.27	$0.67	$21.04	$23.51	$87.32	$93.49
D and A	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
EBIT	-$0.90	-$0.27	$0.67	$21.04	$23.51	$87.32	$93.49
Interest	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
EBT	-$0.90	-$0.27	$0.67	$21.04	$23.51	$87.32	$93.49
Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
NPAT	-$0.90	-$0.27	$0.67	$21.04	$23.51	$87.32	$93.49
P/E Valuation @ 15x	**N/A**	**N/A**	**$10.02**	**$315.65**	**$352.62**	**$1,309.79**	**$1,402.41**
EBITDA Multiple @ 10x	**N/A**	**N/A**	**$6.68**	**$210.43**	**$235.08**	**$873.20**	**$934.94**

Source: IIR Analysis

VALUATION UPSIDE

- Although not included in Table 3, there is the potential for significant upside through:
  - Increasing of the risk multiplier through material advancement (hence de-risking) of the current valued items,
  - Increased involvement in the brine processing, rather than just licencing the technology - although would add extra costs, there would be the potential for extra returns, including taking a share of the revenues from the sale of products (as discussed in commercialisation section earlier),
  - Successful commercial operation of the current technologies should lead to significant further opportunities, and thus a significant increase in value; and,
  - Development and commercialisation of additional technologies.
- This additional upside is almost impossible to quantify, however could prove to be very significant.

QBS VALUATION

- We have undertaken a high level analysis and valuation of a complete industry "clean up" operation, including the treatment of all existing, and all expected brine produced under the current CSG operations.
- This includes a comparison between the Company's recently released cost and revenue estimates for an integrated operation using proprietary technology, and a Base Case using existing technology.
- There are also only limited data in the public arena detailing costs of large scale water treatment plants.
- Volumes treated and plants include:
  - Treatment of brines containing 6,000,000 tonnes of dissolved salts,
  - Total brine treated of ~134 GL, at an average concentration of 45 g/L TDS,
  - This includes the more saline pre-concentrated brines at Shell QGC facilities with a salinity in the order of 250 g/l, and RO brine rejects at other facilities with an assumed salinity in the order of 35 g/L; and,
  - Three upstream brine concentration plants and four downstream plants, to treat the concentrated brine- plants commence operations at two year intervals commencing in 2026.
- We have assumed that one downstream plant will treat already pre-concentrated brines, with three treating brines concentrated via Parkway's upstream concentration process.

- We have compared this against the Base Case using mixed salt recovery and salt encapsulation, which again will include the concentration of brine at three sites, and then salt recovery at four sites, with the disposal of all salt to salt encapsulation facilities
- As discussed earlier the Company has released cost estimates both for two Base Cases (salt encapsulation and selective salt recoveries) and the proposed QBS treatment processing, with the Base Case cost estimated from:
  - High level capital and operating costs for the Veolia managed Shell QGC water treatment plants, which include RO followed by brine concentration stages; and,
  - Published high level estimates of the operating and capital costs for the SSR plants as presented in an 2018 APPEA study ("Queensland Gas: end-to-end water use, supply and management").
- For our Base Case, we have adjusted historic cost estimates for the Veolia managed QGC water treatment plant and the conceptual SSR plant (as in the APPEA report) by the following:
  - We have assumed a mix of 80% equipment (imported) and 20% EPCM etc for the costs of the processing plants,
  - Equipment costs have been escalated by both changes in the US dollar (in which equipment costs would be denominated in) and CPI since the work was undertaken in 2012,
  - Domestic costs have been escalated by CPI; and,
  - We have used an economy of scale exponent of 0.6 to adjust plant costs to account for different throughputs.
- Historic operating costs have also been escalated by CPI, as well as being adjusted by the economies of scale exponent.
- For the SSR plants, the capex and opex figures are based on and calculated from:
  - Midpoint plant capex of A$660 million for a 3 ML/day feed plant, resulting in a capital intensity of ~760,000 per annual ML treated; and,
  - Midpoint operating costs of A$53 million per year, equating to ~A$48,000/ML, which we assume includes the cost of power, as they are presented in the original document as a total operating cost.
- We have considered Shell QGC's integrated water treatment plants as proxies for the Base Case brine concentrators - there are no readily available published cost data for large scale standalone brine concentrators.
- The Shell QGC plants initially treat CSG water through standard RO treatment to produce brine, which is then further conditioned and concentrated to recover a total of ~ 97% of the water - the latter stage is the most cost intensive.
- 2012 costs included:
  - A midpoint capex of A$1,000 for plants that treat around 65 ML/day; and,
  - Contracted annual operating and maintenance costs of ~A$40 million - this does not include electricity - we have doubled this figure to calculate the overall operating cost, as power does account for ~50% of the opex for such plants.
- We have adjusted these published figures using the method as described above.
- This results in a total Base Case capex requirement in the order of A$9 to A$10 billion, and life of operation costs in the order of A$12 billion to treat present and future brines.
- Two cases, which have similar overall costs, were looked at:
  - Treatment via concentration and mixed salt crystallisation, with lower capex and opex offset by higher salt disposal costs, with 100% of the estimated six million tonnes of produced solids needing to be disposed of; and,
  - Treatment via concentration and selective salt recovery - this has more expensive direct capital and operating costs, however these are offset by only having to dispose of 20% of the solid products, with the remainder being potentially saleable.
  - We have used the former in our valuation.
- It needs to be noted that, as discussed earlier, disposal costs (capital and operating, including levies) are significant, potentially being in the order of A$600/tonne of solids disposed of, resulting in a total figure of between A$1.2 billion and A$3.6 billion over the life of the operation.
- We have used Parkway's published capital and operating costs for their proposed operation.

- Our analysis of Company and 3rd party data indicates the total production and real (2023) prices of the following end products:
  - 3.44 Mt of industrial salt at A$50/tonne, 8% of revenue,
  - 2.56 Mt of 50:50 wt% caustic soda at A$680/tonne, 83% of revenue,
  - 2.56 Mt of agricultural lime at A$100/tonne, 9% of revenue,
  - 132 GL of purified water; and,
  - 0.29 Mt of residual brine at a disposal cost of A$175/tonne.
- Of these products, the largest contributor to revenue is caustic soda - refineries in Gladstone that use caustic soda, and import 100% of requirements, would be a logical local market.
- Prices in the order of US$350 - US$600/tonne FOB China are quoted on various sites on the web for caustic soda.
- There is also potential revenue upside with water - allocations average at around A$2,000/ML in Queensland - however any water revenue would be relatively minor in the overall scheme of things.
- Produced tonnages are presented in Table 4.

Modelling Parameters and Outcomes

- A summary of costs and revenues as presented in the Companies June 22, 2023 "Master Plan" release, and those from our modelling are presented in Table 4.
- Note that capital costs have been amortised using a straight line method over the 20 year life of each plant, with the annual figures used to calculate the net benefit to PWN.
- Our Base Case modelling supports the estimated capital and operating costs as published by the Company.
- The main difference is in the forecast revenue - the Company has not publicly divulged its revenue assumptions, and thus difference will be due to these.
- The key figure here is the net benefit, which forms the basis of our valuation - we have assumed that royalties (potentially between 10% and 20%) will be based on this, however it could also be the case that royalties are calculated on a different basis.
- Our figures are unescalated, however escalating the total QBS benefit at 2.5% per year gives a figure of $23 billion over the life of the operation.
- The escalated net benefit is shown graphically in Figure 12, which also presents the plant schedule as released by the Company.

Table 4: PWN vs IIR cost analysis - A$m

PWN vs IIR cost analysis - A$m						
Cost/Revenue	**PWN Master Plan Release Figures**			**IIR Modelling**		
	SEF	**SSR**	**Parkway - QBS**	**SEF**	**SSR**	**Parkway - QBS**
Capex	$9,030	$8,800	$1,560	$9,678	$8,889	$1,560
Plant Opex - Annual	$471	$542	$192	$466	$512	$192
Transport Opex - Annual	$54	$50	$31	$54	$50	$31
Waste Disposal Costs - Annual	$95	$19	$3	$90	$18	$12
Revenue Generation - Annual	$0	$25	$129	$0	$25	$108
Annual Opex	$620	$611	$226	$610	$580	$235
LoM Opex	$12,400	$12,220	$4,520	$12,199	$11,593	$4,698
LoM Revenue	$0	$500	$2,580	$0	$500	$2,169
Total Costs	$21,430	$21,020	$6,080	$21,877	$20,482	$6,258
Net Costs	$21,430	$20,520	$3,500	$21,877	$19,982	$4,089
Net Benefit to PWN	$17,930	$17,020	-	$17,788	$15,893	

Source: Publicly available reports, IIR analysis

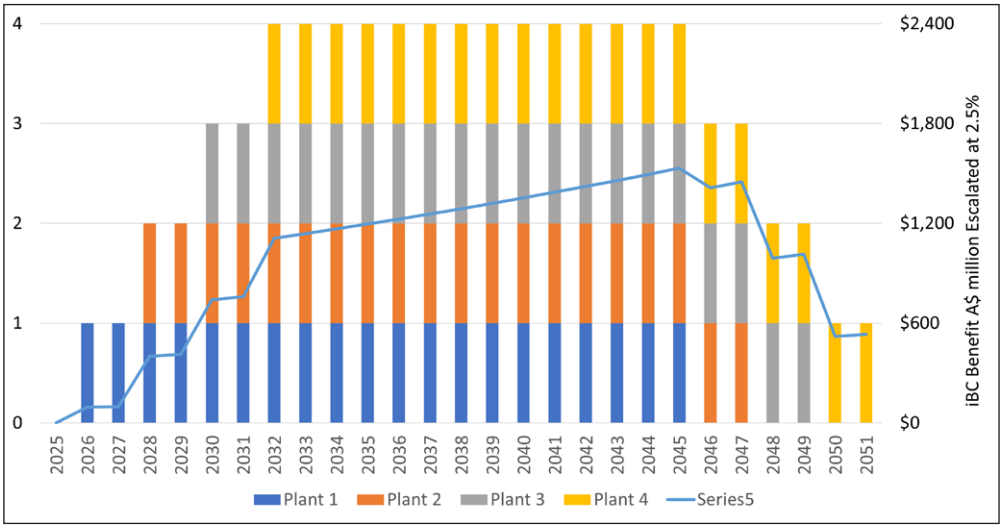
- Table 5 presents more detailed outcomes from the modelling, including annual figures per conceptual plant - note that our "Plant 1" is assumed to be treating already concentrated brines.
- Another thing to note is that the sum of the products is greater than the salt content of the brines, due to the caustic soda being quoted on a 50:50 aqueous solution basis, and with some reactions in the Company's processing introducing external material.

Table 5: Modelling Outcomes

Modelling Outcomes						
Parameters	**Annual Figures - QBS Facilities**				**Annual Total - QBS**	**LoM Figures - QBS**
	Plant 1	**Plant 2**	**Plant 3**	**Plant 4**	**Total/Year**	**LoM Total**
	Pre-conc brine	Include Upstream Concentration Facilities			Combined Operations	
Industrial Salt (t)	43,000	43,000	43,000	43,000	172,000	3,440,000
Caustic Soda 50/50% (t)	32,000	32,000	32,000	32,000	128,000	2,560,000
Agricultural Lime (t)	32,000	32,000	32,000	32,000	128,000	2,560,000
Residual Brine (t)	1,125	1,125	1,125	1,125	4,500	90,000
Total Products (t)	108,125	108,125	108,125	108,125	432,500	8,650,000
Total exc NaOH Water & Brine (t)	91,000	91,000	91,000	91,000	364,000	7,280,000
Water in Caustic Soda (ML)	16	16	16	16	64	1,280
Purified Water - Upstream Plants (ML)	0	1,488	1,488	1,488	4,465	89,304
Purified Water - Downstream Plants (ML)	274	622	622	622	2,140	42,792
Purified Water - Total (ML)	274	2,110	2,110	2,110	6,605	132,096
Water - Treated (ML)	291	2,127	2,127	2,127	6,673	133,466
Calc Source Salinity (g/l)	258	35	35	35	45	45
Opex	-$51.2 m	-$61.2 m	-$61.3 m	-$61.3 m	-$234.9 m	-$4,698 m
Capex Amortisation	-$4.9 m	-$24.4 m	-$24.4 m	-$24.4 m	-$78.0 m	-$1,560 m
Revenue	$27.1 m	$27.1 m	$27.1 m	$27.1 m	$108.4 m	$2,169 m
QBS Total Costs & Revenue	**-$28.9 m**	**-$58.4 m**	**-$58.5 m**	**-$58.5 m**	**-$204.5 m**	**-$4,089 m**
Parameters	**Annual Figures - Base Case Plants**				**Annual Total - Base Case**	**LoM Figures - Base Case**
	Plant 1	**Plant 2**	**Plant 3**	**Plant 4**	**Total/Year**	**Total LoM**
Opex	-$70.3 m	-$179.9 m	-$179.9 m	-$179.9 m	-$610.0 m	-$12,199 m
Capex Amortisation	-$46.9 m	-$145.7 m	-$145.7 m	-$145.7 m	-$483.9 m	-$9,678 m
Base Case Total Costs	-$117.2 m	-$325.6 m	-$325.6 m	-$325.6 m	-$1,093.8 m	-$21,877 m
Net Benefit to QBS	**$88.3 m**	**$267.1 m**	**$267.0 m**	**$267.0 m**	**$889.4 m**	**$17,788 m**

Source: Publicly available reports, IIR analysis

Figure 12: QBS plant schedule and net benefit escalated at 2.5% pa



Source: IIR analysis

BOARD AND MANAGEMENT

- **Mr Stephen van der Sluys, BBuild, MAusIMM, MAICD – Non-Executive Chairman and Independent Director:** Mr van der Sluys is a highly credentialed investment banker and business executive, with extensive international experience in capital markets and strategic transactions, including mergers & acquisitions. Mr van der Sluys has held a number of senior investment banking roles (predominantly in Australia and the United States of America), including with Citibank, JP Morgan Chase & Co, Bank of New Zealand and as CEO of CIBC Wood Gundy Australia. In addition to his investment banking experience, Mr van der Sluys has also held various senior executive roles, at a range of large companies which operate in the mining and resources industry, including as executive director of Queensland Nickel during the period which the company successfully listed as an ASX100 company. More recently, Mr van der Sluys has assisted a number of junior resources companies achieve corporate success. In particular, Mr van der Sluys was executive chairman and subsequently managing director of Jervois Mining Limited (now Jervois Global Limited, ASX: JRV), having played a pivotal role in a successful transformation of the company.

  Mr van der Sluys was originally appointed as an independent non-executive director of Parkway on 31 August 2022, and was subsequently appointed as Parkway's non-executive chairman on 19 September 2022.

- **Mr Bahay Ozmakmak, BSc, MABus, DipFin(Inv.), MAICD - Managing Director & CEO:** Mr Bahay Ozcakmak is a highly experienced executive having been engaged as a corporate adviser by more than 50 companies operating in a range of sectors, during the last 15 years. Mr Ozcakmak has extensive corporate development expertise, including M&A experience in the technology, energy and mining sectors, where he has led the successful acquisition, development and/or commercialisation of several flagship projects, including major corporate transactions, mostly with publicly listed companies. In addition to extensive corporate experience in business and corporate strategy development in the energy and mining sectors, including in a diverse range of commodities, Mr Ozcakmak has also been focused on creating value through the commercialisation of innovative and sustainable technologies in these sectors.

  During two decades of successful technology commercialisation experience, Mr Ozcakmak has also founded several technology companies, including Activated Water Technologies and was the CEO of AWT's parent company, Consolidated Potash Corporation, up until its acquisition by Parkway. Bahay is considered a technology commercialisation expert, having successfully led the commercialisation of numerous technologies in the agtech, biotechnology, desalination, energy and mining sectors. Since 2015, Mr Ozcakmak has also led a highly successful collaboration with leading researchers at Victoria University. In recognition of the contributions made by Mr Ozcakmak to the Institute of Sustainable Industries & Liveable Cities located at the Werribee campus of Victoria University, in May 2020, the honorary title of Adjunct Associate Professor was conferred upon Mr. Ozcakmak.

  Mr Ozcakmak has extensive equity capital market experience, is currently a director of several private and public companies and has previously held directorships and C-suite roles with numerous companies listed in Australia (ASX), Canada (TSX) and the UK (AIM).

  Mr Bahay Ozcakmak was appointed Managing Director of Parkway on 28 November 2019, prior to which he was executive director from 19 September – 28 November 2019.

- **Ms Penelope Creswell, BA & LLB (Hons) MAICD – Independent Director:** Ms Creswell is a highly experienced lawyer, with 25+ years of professional experience, including ~10 years at Allens (one of Australia's most prestigious top-tier law firms) and most recently ~7 years as the leading in-house legal counsel for all planning and environmental legal matters at Cleanaway Waste Management Limited (ASX:CWY), Australia's largest waste management company. Ms Creswell also brings ~4 years of experience at the Northern Land Council in the Northern Territory, as well as experience as a secondee General Counsel at Melbourne Water, to her role with the Company. While her professional career has spanned diverse areas of law, her key focus over the last 15 years has been infrastructure projects, planning and environmental law, including in the waste and water sectors.

  Ms Creswell was appointed as an independent non-executive Director of Parkway on 26 October 2021

- **Ms Ayten Saridas, BCom, MAPF, CPA – Independent Director:** Ms Saridas is a results-driven finance executive with over 30 years of international experience across a broad range of industries including in oil and gas, mining, retail, infrastructure, property, and financial services. Ms Saridas is a proven leader with an established reputation in the financial markets, with a solid track record in the investment community and brings commercial acumen and strength in strategic thinking and delivering solutions for complex financial situations.

  Ms Saridas has until recently held CFO and executive roles with Coronado Global Resources, Santos Ltd, AWE Limited and Woolworths amongst other ASX listed companies. Ms Saridas's core strengths include working with companies to develop disciplined capital allocation strategies, drive growth through strategic positioning and execution of business plans to deliver sustainable profits. Ms Saridas has led the development of corporate strategy, M&A and IPO transactions, corporate defence and multi-billion dollar capital raisings in support of these achievements.

  Ms Saridas was appointed as an independent non-executive Director of Parkway on 12 October 2022.

- **Ms Amanda Wilton-Heald – Company Secretary:** Ms Amanda Wilton-Heald is a Chartered Accountant with over 20 years of accounting, auditing (of both listed and non-listed companies) and company secretarial experience within Australia and the UK. Ms Wilton-Heald has been involved in the listing of junior explorer companies on the ASX and has experience in corporate advisory and company secretarial services.

  Ms Amanda Wilton-Heald was appointed company secretary of Parkway on 7 March 2018.

- **Mr Robert Van der Laan – Chief Financial Officer:** Mr Robert Van der Laan is a qualified accountant with more than 25 years' experience in the management of financial and risk management systems of public and private companies, in the resources and engineering sectors.

  Mr Robert Van der Laan was appointed chief financial officer of Parkway on 13 May 2011.

- **Mr Mike Hodgkinson - Chief Commercial Officer:** Mike is a highly accomplished cleantech executive with a wealth of experience in sustainability and innovation. Throughout his career, he has consistently demonstrated his ability to create shareholder value through raising capital, forging strategic partnerships, managing high-growth companies, and successfully commercialising various technologies and engineered products. For example, at Citigroup, Mike founded and led the finance and legal divisions of Orbian, creating a successful joint venture with SAP for a global trade finance platform that has now settled over $240 billion in transactions.

  Throughout his career, Mike has also played pivotal roles in securing major contracts and partnerships and managing commercial activities. Mike has worked for multinationals including Comalco, Alcatel, and Citigroup, as well as several dynamic VC-backed companies including RayGen and Relectrify.

  Mike is a Certified Practicing Accountant (CPA Australia), has an Executive MBA from Columbia and London Business Schools, and degrees in Economics and Law (with honours) from Monash University. With his background in cleantech and sustainability, exceptional commercial acumen, and proven track record of creating significant shareholder value, Mike brings extensive experience to Parkway and is well-positioned to make a valuable contribution to Parkway's growth and success

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