



MARCHMENT HILL CONSULTING
determined to make a difference

Volatile Energy Markets

Water Sector Risk & Opportunity Briefing

The Australian Club, Melbourne

June 2017

Agenda

- 11:00am Welcome and introduction
- 11:10am MHC's Water Practice
- 11:15am Energy users face a challenging outlook
- 11:30am The ARENA & AEMO Demand Response Program
- 11:50am Water Sector Case Study 1 - South East Water
- 12:00pm Water Sector Case Study 2 - Yarra Valley Water
- 12:10pm GreenSync Case studies
- 12:30pm Discussion / Q&A
- 12:50pm How MHC can assist / suggested next steps
- 1:00pm Close

Introducing MHC



Neil Gibbs

Founder & Executive Chairman
Energy Industry Lead



Ryan Wavish

CEO & Principal Consultant
Technology Innovation & Reform practice



Paul Harris

Water Industry Lead
Principal Consultant

The background image shows a large-scale industrial water treatment facility. Several massive, light-colored cylindrical pipes or tanks are arranged in a row, receding into the distance. The pipes are supported by a complex network of metal structures and ladders. In the background, there are hills and some buildings under a clear sky. A large, dark green geometric shape, composed of several triangles, is positioned in the top right corner. A dark grey horizontal bar is overlaid across the middle of the image, containing the text. A thin green vertical line is on the left side of the bar.

MHC's Water Practice

MHC's Water Practice

- The practice has steadily grown over the last 9 years and become a leading, trusted water sector advisor
- MHC 'cut our teeth' delivering **performance optimisation** in the water industry (benchmarking, organisation structure and processes)
- MHC has extensive experience and knowledge delivering **strategic sourcing** engagements across the Australian water industry
- MHC are recognised as industry leaders in **developing economic business cases for intelligent water networks**
- Through the work of our Energy Practice in relation to solar, batteries, and distributed energy business models MHC are providing leadership on opportunities within the **energy / water nexus**

MHC 'cut our teeth' delivering performance optimisation in the water industry (benchmarking, organisation structure and processes)

	<p>Development of organisational structure and position descriptions to allow integration of Ben Lomond Water, Cradle Mountain Water, Onstream and Southern Water to form TasWater</p>		<p>To better position the organisation with respect to servicing huge growth, conduct a process review of the entire asset creation function, resulting in strategic repositioning of customer-facing tasks involving community, developers, consultants and contractors</p>
	<p>Comprehensive value chain analysis to optimise and streamline the delivery processes for the network and facilities renewal planning, design and delivery program</p>		<p>Review of land development processes to alleviate administrative and other non-technical burdens, allow optimal resourcing and efficient delivery, and improve the customer experience</p>
      	<p>Development and delivery of civil maintenance process benchmarking program that compares cost and service level performance and maintenance practices across a Victorian and National peer group for a number of civil maintenance activities (burst and leaking water mains, main taps, stop taps, blocked sewer mains, pump wet wells, manholes)</p>		<p>Development of a shared service arrangement with a water retailer to create a 24/7 online customer portal for automating high volume, low complexity meter connection transactions</p>
	<p>Comprehensive value chain analysis to optimise and streamline the delivery processes for the capital planning and delivery program</p>		<p>Review of the service delivery operating model, including organisational structure, roles, processes, performance management and business systems in order to identify implementable performance improvements</p>

MHC has extensive experience and knowledge delivering strategic sourcing engagements across the Australian water industry

	<p>Contracting strategy development and implementation for a \$50m p.a. maintenance contract for civil maintenance and M&E maintenance services</p>		<p>Development of business case to support selection of preferred resourcing strategy for civil maintenance services</p>
	<p>Development of a 'fit for purpose' capital procurement model for water network, sewer network, water & sewer facilities and major projects, in order to deliver \$50m savings over 3 years</p>		<p>Review of resourcing strategy for civil and M&E maintenance services involving contract model development and market testing of these services (valued at \$8m p.a.) with Tier 1 and Tier 2 service providers</p>
	<p>Review of resourcing for all civil and M&E maintenance services, determination of core and non-core functions, and development of an insourcing and outsourcing strategy</p>		<p>Contracting strategy development and implementation for a \$15m p.a. maintenance contract for civil maintenance and M&E maintenance services</p>
	<p>Review of maintenance planning and delivery and procurement functions, including workforce productivity to determine an insourcing and outsourcing strategy for civil and M&E maintenance services</p>		<p>Review of resourcing strategy for all civil maintenance services through comparison to performance of Tier 1 and Tier 2 service providers</p>
	<p>Review of resourcing strategy for all metropolitan and regional civil maintenance services through comparison to performance of Tier 1 and Tier 2 service providers</p>		<p>Review of resourcing strategy for all civil and M&E operations and maintenance services to determine appropriate resourcing levels and productivity targets</p>

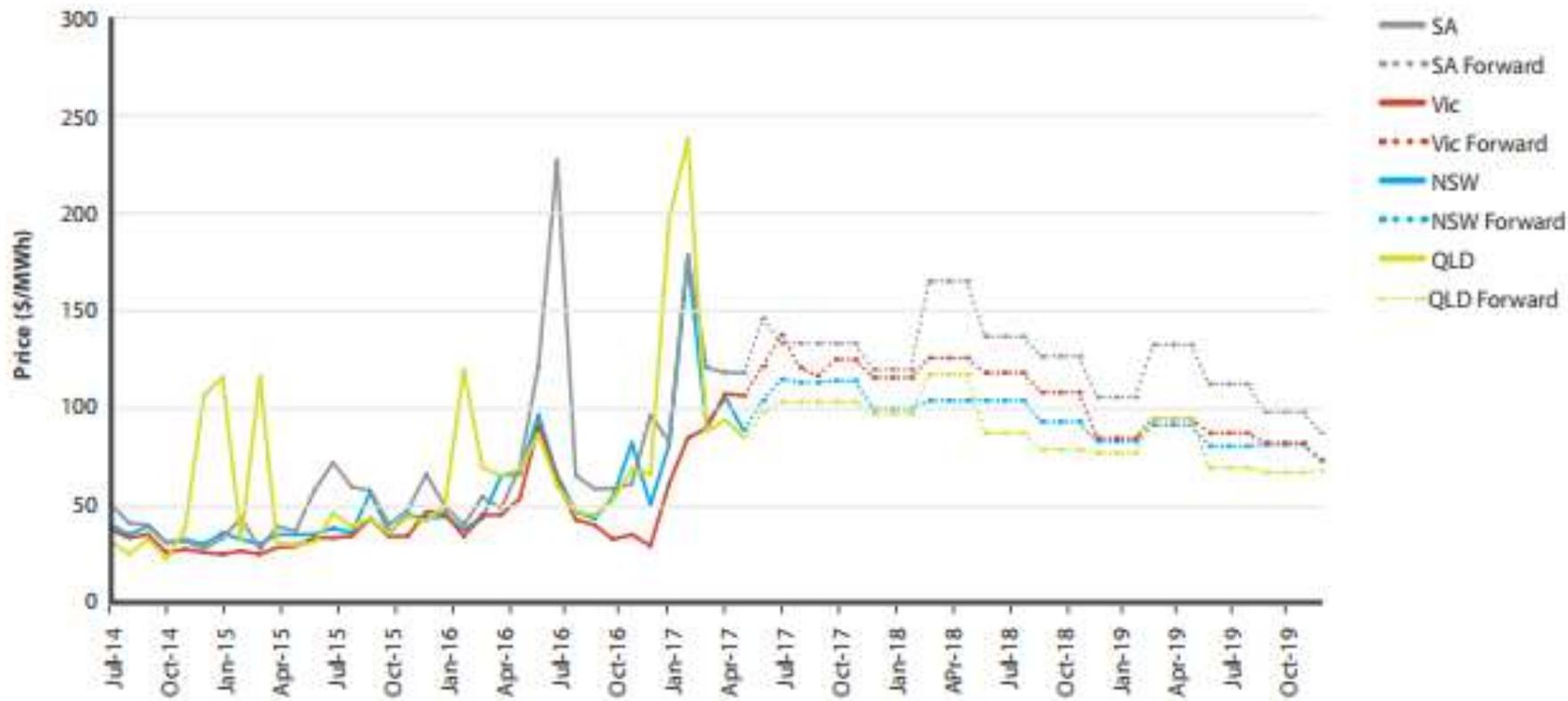
MHC are recognised as industry leaders in developing economic business cases for intelligent water networks

	<p>Provide input to Government's two-part pricing policy decision process by examining the economic costs and benefits of various smart and accumulation meter rollout options</p>		<p>To develop an understanding of whether the Victorian electricity Advanced Metering Infrastructure (AMI) deployment could be leveraged to produce benefits for the water industry and its customers</p>
	<p>To analyse the current status and governance arrangements of National, NSW and Victorian AMI programs, the process interface requirements that our client had of AMI, and the gaps in current protocols and policy to enable effective integration</p>		<p>Comprehensive peer review of their digital metering business case (assumptions, inputs, outputs and approach for the financial, economic and community costs analysis, scenario analysis) prior to submission to their regulators</p>
  	<p>Development of digital water metering business case template on behalf of a collaborative digital transformation initiative being undertaken by all of Melbourne's water retailers to investigate technologies and rollout options</p>	  	<p>Development of an economic business case for the rollout of digital metering as an early step in the organisation's transition to an intelligent water network</p> <p>Delivery of a cost benefit study for the rollout of smart water metering across entirety of Victoria to support the government's demand management policy</p> <p>Development of digital water metering business case for deployment of digital metering with single and two-way communications in CBD, urban and/or regional context</p>

The background of the slide features a photograph of industrial infrastructure, including several large, parallel pipes and a large cylindrical tank, set against a hazy, outdoor environment. A prominent green geometric shape, composed of several overlapping triangles, is located in the top right corner. A dark grey rectangular box is positioned in the lower-left quadrant, containing the main text. A thin green vertical line is placed to the left of the text box.

Energy users face a challenging outlook

Wholesale Electricity Market prices are high, and forecast to stay high



Source: Finkel Energy Market Review

This is primarily being driven by 1) gas prices and 2) investment uncertainty

Domestic gas prices are being driven up by LNG exports - the changing supply and demand balance



Source: Fairfax, 15th June 2017

Every \$1/GJ increase in gas prices leads to an increase of about \$10MWh in the cost of gas fired electricity

Gas is increasingly setting the clearing price for the wholesale electricity market



Source: Fairfax, 15th June 2017

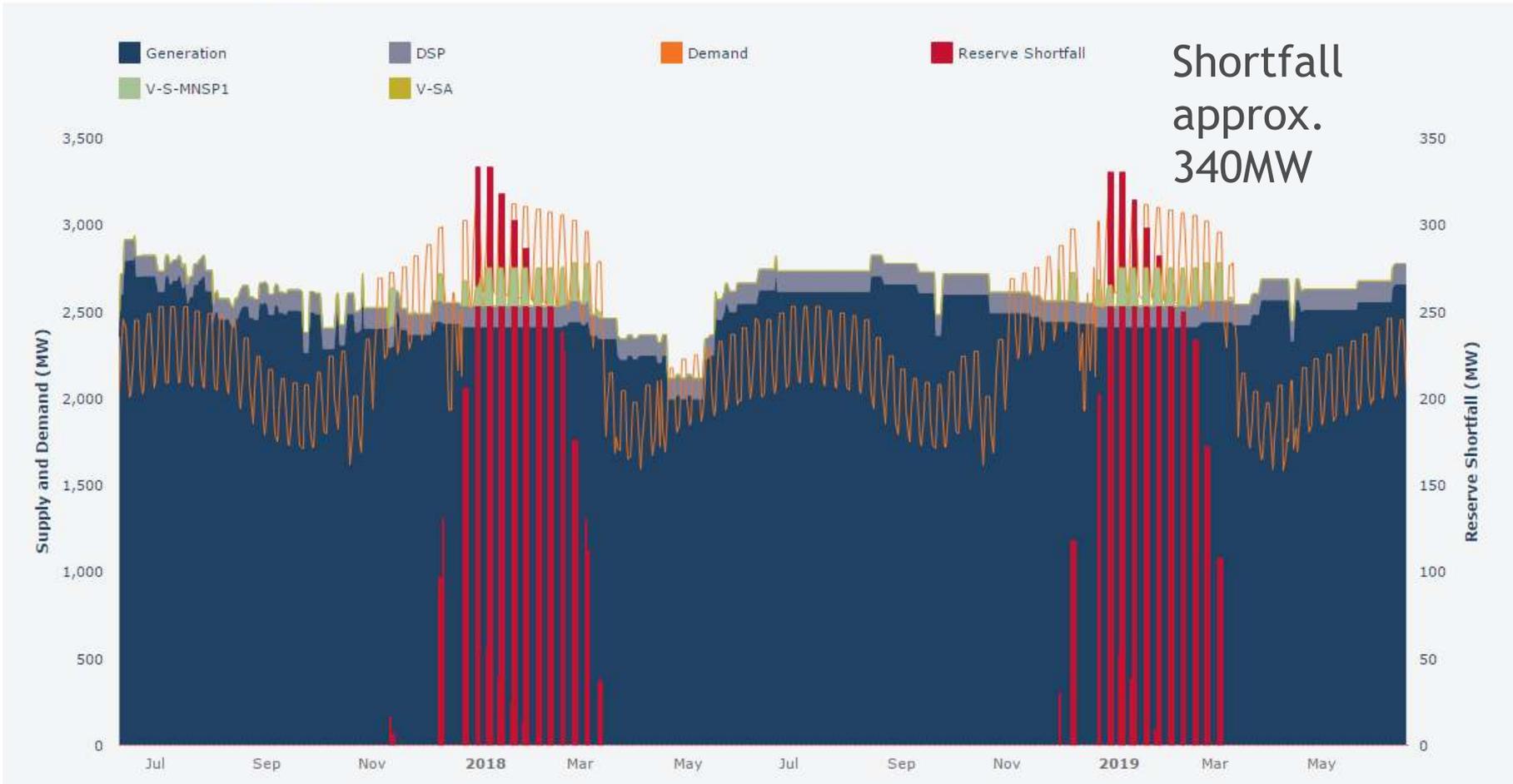
In May 2017, across the NEM, gas set the electricity price 24% of the time, compared to 9% in May 2014

In addition, historical investment uncertainty has constrained supply, in SA...

⚡ MEDIUM TERM OUTLOOK



NSW QLD VIC **SA** TAS



Source: AEMO, 14th June 2017

... and now in Victoria



Source: AEMO, 14th June 2017

The Finkel Review provides some longer-term solutions

1. **Adoption of a Clean Energy Target (CET) within 6 months.**
Mandates that energy retailers provide a certain amount of their electricity from “low-emissions” generators (Co2 / MWh).
2. **Large emissions power generators required to give 3 years’ notice before closure.**
3. **Introduce an integrated grid plan to inform investment decisions and ensure security is preserved in each region as the generation mix evolves (e.g. by developing renewable energy zones/additional connection requirements).**
4. **Establish a new Energy Security Board (ESB) to deliver recommendations of the Finkel Review. ESB would coordinate 3 existing market bodies (AEMC, AER, AEMO).**
5. **ESB undertake an annual public health check of National Electricity Market performance, risks and opportunities.**

Potential for some short term relief via gas market reforms

- Draft legislation has been introduced to give the Minister for Resources power to constrain exports (to be in place by 1 July 2017) - to ensure the domestic market is supplied before exports are permitted.
- Net exporters will be required to detail how they will fill the shortfall of domestic gas as part of their overall production and exports e.g Gas Swaps/International imports.
- Designed as a “last-gasp” measure, empowering the government when there is a shortfall of gas supply in the domestic market vs. forecast demand.
 - *Note: Demand is set to increase as gas-generated electricity assists transition from coal-fired power generation.*
- Other “ideas” being explored/implemented include:
 - Expanding gas royalties directly to farmers in SA
 - Floating offshore gas reservoirs in VIC
 - Banning future/current export development
 - Lifting state-based moratoria on gas exploration and development

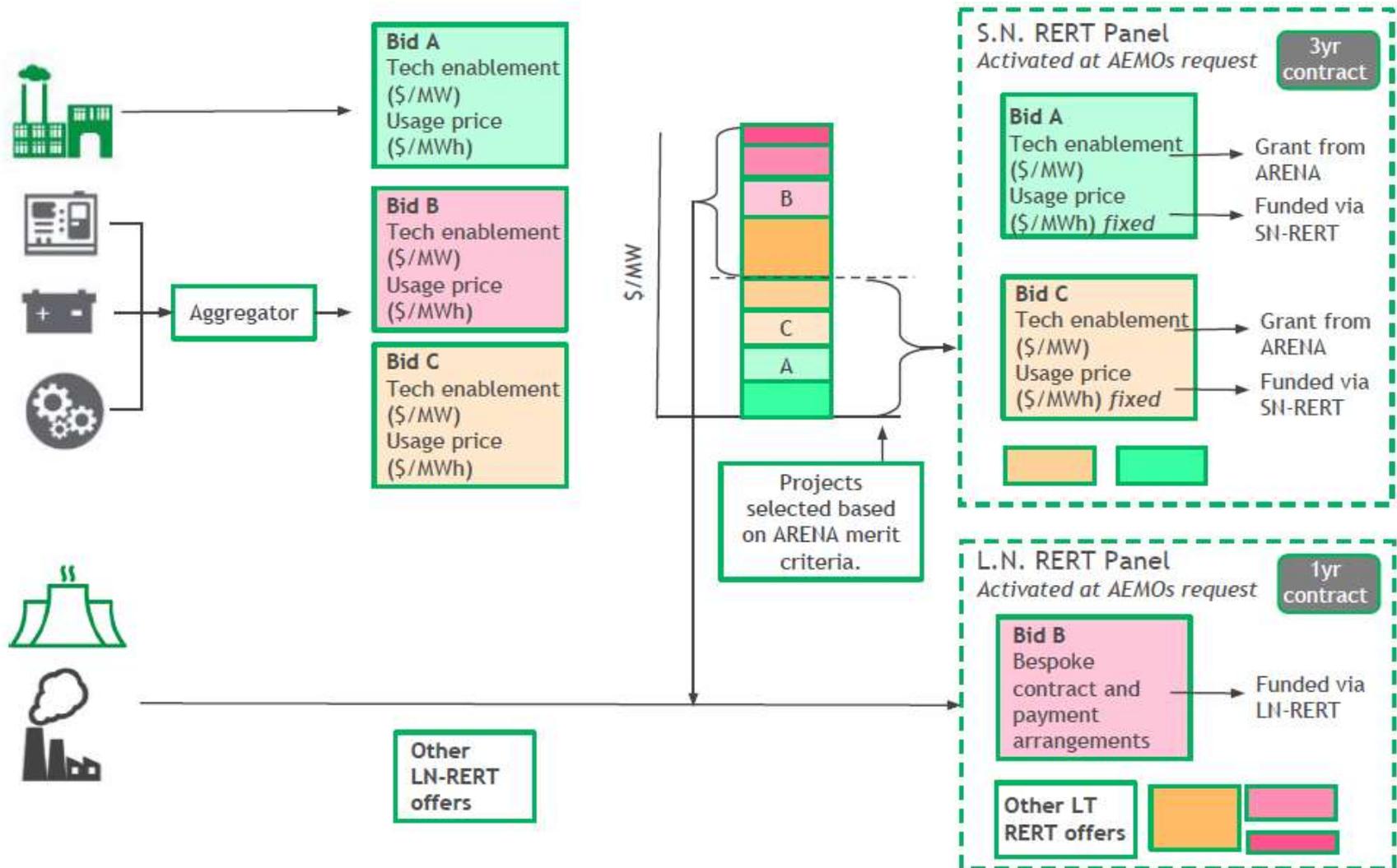


AEMO/ARENA Demand Response Competitive Round

Headlines

- Joint initiative by ARENA and AEMO
- ARENA will provide up to \$22.5m over 3 years
- Funding for approx. 100MW of **emergency** demand response
- AEMO will utilise the Short Notice RERT to activate reserves
- Targeting innovative approaches to delivering demand response
- NEM wide, but priority for Victoria and South Australia
- Competitive round - applications close 10th July at 5pm

Funding mechanism is a mix of ARENA and AEMO \$



Pricing and payments (overview)

ARENA element

- Technology enablement funding (\$/MW) is for:
 - Equipment and appliance load controls
 - Metering and communications technology
 - Distributed generation assets and storage
- Technology enablement payment schedule is:
 - 5% upfront; 25% after initial testing
 - 6 monthly instalments of remaining 70% over 3 years (based on testing every 6 months)

Short Notice RERT

- Usage price bid is capped at \$1000/MWh (but not considered by ARENA)
- ARENA also want a “what if” grant price if the usage price was \$10,000/MWh (not assessed, for information discovery purpose only)

Key criteria - eligibility

- Capacity min 5MW (in yr 1, in a region), max 30MW (NEM wide)
- Capacity mix must not include > 20% fossil fuel generator
- No new or newly rented diesel generators
- Ability to ramp up within 60min or 10min (two product types)
- Type 1-4 or Vic AMI meters
- Not a scheduled generator
- Connected to distribution network
- Operational by 1st December
- Capacity to respond to tender by 10th July!

What ARENA are really looking for

- Capacity in SA and VIC
- Innovative demand response processes and methods:
 - New technologies
 - New engagement processes
 - New customer segments (especially residential)
 - Creative aggregation models
- High levels of available capacity from year 1
- A mixed portfolio - no more than 50% from industrial loads
- Quicker response times (10min is better than 60min)
- Value for money
- Knowledge sharing

Additional value streams

- The DR capability funded by ARENA can be contracted for other DR services outside of the SN RERT period (<7 days)
- Other potential sources of value:
 - Offsetting high demand charges
 - Managing exposure to market spot prices
 - Providing network support services
 - Optimising existing solar PV value
 - Related customer and brand value

Also, if your capacity is ineligible or unsuccessful in the ARENA process, it may still be viable for the **Long Notice RERT** through AEMO directly:

- Availability and activation payments
- Contracts up to 9 months
- Conditions entirely negotiable
- EOI currently open

Key dates

Key Dates	Activities
8 June	Funding Announcement Released
16 June	By 5pm: <ul style="list-style-type: none">- Register your intent to apply for funding- Provide feedback on the funding agreement and KS plan
23 June	Final ARENA funding agreement released
10 July	Applications close 5pm
July-August	Assessment of applications
September	ARENA and AEMO funding agreements executed
December	Test Activation Window opens and program live



South East Water



Yarra Valley Water

The background of the slide is a photograph of an industrial facility, likely a refinery or chemical plant. It features several large, parallel, light-colored pipes or conduits that run diagonally across the frame from the bottom left towards the top right. The pipes are supported by a complex network of metal structures and ladders. In the upper right corner, there is a decorative graphic consisting of several overlapping, semi-transparent green triangles of varying shades, creating a fan-like or starburst shape. A dark grey horizontal bar is positioned across the middle of the image, containing the text 'GreenSync'. A thin green vertical line is located on the left side of this bar, extending slightly above and below the text.

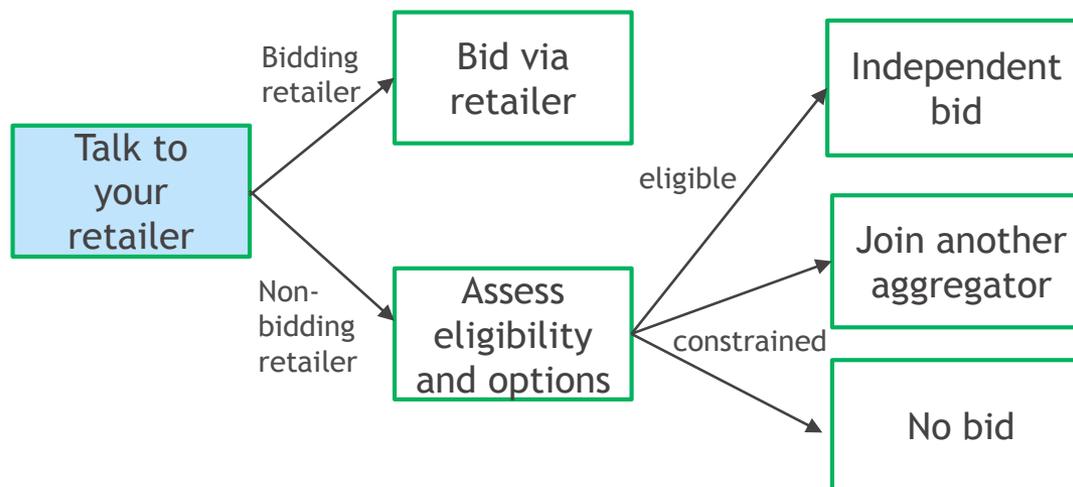
GreenSync

The background of the slide is a photograph of an industrial facility, likely a water treatment plant, featuring several large, parallel, light-colored pipes that recede into the distance. A large, cylindrical tank is visible on the right side. The image is partially obscured by a semi-transparent dark grey rectangular box containing text. In the top right corner, there is a decorative graphic consisting of several overlapping green triangles of varying shades. A thin vertical green line is positioned to the left of the text box.

How can MHC assist? Some suggested next steps

What should you do?

- The ARENA/AEMO funding represents a unique opportunity to become DR enabled



- MHC are supporting a number of bidders in the process to
 - Assess opportunities
 - Prepare a business case
 - Document submission papers
- Also, GreenSync have engaged MHC to support their customers to make a bid (approx. 2 dpw bid support + commitment to utilise GreenSync products)

About MHC

MHC is a management consulting firm **determined to make a difference** by serving the needs of the energy and water sectors in Australia.

QSI Online

Our quarterly journal, QSI Online, shares our insights with the industries we serve and empowers businesses with high quality, content-rich, and contemporary information relevant to their industry.

www.marchmenthill.com/qsi-online

Our Philosophy

The MHC Philosophy, validated and reinforced by our work for clients around the world, holds that the value (V) of a consulting intervention rests on three cornerstones:

$$V = Q \times S \times I$$

Value of Engagement Quality of Insight Support for Change Implementation with Integrity

Marchment Hill Consulting
Level 4, 530 Lonsdale Street, Melbourne, VIC 3000, Australia
P: +61 3 9602 5604 F: +61 3 9642 5626