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Bilateral markets call for information
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Bilateral Markets – call for information

To whom it may concern

RWE welcomes the opportunity to respond to the Ofwat call for information on “Bilateral Markets” issued in June 2019 (the Consultation Document). We are responding on behalf of RWE Generation UK plc (RWE). This is a non-confidential response.

RWE would like to contribute to the extensive work that Ofwat is undertaking in order to facilitate a bilateral market in wholesale water and enable new entrants to this market. RWE would welcome a workshop opportunity using an example project should that be seen as helpful.

Our answers to the specific questions raised in the Consultation Document are included in Annex 1. If you have any comments or wish to discuss the issues raised in this letter then please do not hesitate to contact me.

Yours sincerely

By email

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Annex 1: Answers to the specific questions in the Consultation Document

Introduction

RWE AG will soon transition into the world's second largest offshore wind company and Europe's third largest renewable generator with 9GW of zero carbon generation. In the UK RWE (RWE) is the second largest generator of electricity. The company has an installed capacity of 8.5GW and produces more than 10% of the country's electricity. The company operates gas fired power plants located across England which use river water for evaporative cooling to support high efficiency plants.

RWE is responding to the opening of the water market and is currently engaged with water companies and the new regional East and South East water resource stakeholder groups to explore options for the cross sector sharing of water resources between industry and public water supply (PWS).

The following comments are in the context of an upstream water supplier seeking to sell raw and/or potable water into the incumbent's transport network (network+ and network only) for onward sale to the incumbent and/ or retail companies.

Question 1. A number of stakeholders have previously expressed interest in supplying water resources, either through the bidding market or in a future bilateral market. There are also a large number of WSSL licensees. We are interested in stakeholders' views on:

a: Whether, in principle, they would be interested in selling water resources via means of a bilateral market;

Since 2015 RWE has operated a dynamic water sharing agreement with Thames Water. During 2018 RWE engaged with key water company stakeholder and initiated a procurement process for the cross sector sharing of water in preparation for bidding into PR19 Water Resources plans. RWE continues to offer raw water options into this bidding process. RWE also commenced the development of a bilateral market option with its water industry partners to provide potable water into a water constrained region.

RWE welcomes the opportunity to input into the extensive work that Ofwat is undertaking in order to facilitate a bilateral market entry. We have taken time and resource in seeking to develop a potable water supply project. The potable water project consists of three key partners:

- 1 RWE as a Raw Water Provider (Non Regulated)
- 2 A Water Company Treatment Partner (Regulated Company)
- 3 A Retail Sales Partner (Regulated Company)

In addition to the above business model, RWE would welcome the ability to sell raw water into the incumbent's network including access to existing treatment (network+) for sale to retailers. This could use either private transport networks to existing water plants/reservoirs or existing rivers/canals for transport, and would require suitable regulated open access and commercial agreements to Network + services for resource suppliers to sell water to retailers for delivery to multiple locations.

b: Whether, in principle, they would be interested in purchasing water resources via means of a bilateral market;

In the proposed business model for the example project it is envisaged raw water is purchased by the water plant operator and the retail partner through bilateral contracts. The retail company would source water from both the incumbent and the new treatment plant. It would offset its wholesale purchase for the volumes supplied by the new Water Company plant. To enable bilateral market entry the project requires regulated open access to the incumbent's potable water transportation system "network only". ("network +" less water treatment costs).

c: Whether, in principle, they would be interested in playing some other role (such as providing water treatment services or providing other services) to support a bilateral market.

The example project is proposing to provide water treatment services. This proposal supports the geographical separation of water resources and retail sales requiring access into the incumbent water company potable water network rather than a private network to the end customers.

In the context of bilateral market entry the example project envisages that the Water Company treatment plant provider enters potable water into the incumbent's potable transportation system. Raw water is traded by RWE to the water plant operator and in turn to the retail partner, through bilateral contracts and the retail company sells potable water to customers. The cost for these sales, network transportation costs and equalisation payments et al, are managed through bilateral contracts.

In addition to regional networks open access to bulk transfer networks would facilitate the commercial delivery (i.e. physical movement and/or offsetting existing water trades) of new resources to adjacent catchments short of resource. The ability to provide bulk water storage i.e. a smaller distributed network of storage capacity should also be considered.

Question 2. Owners of water resources currently have an existing route to market through the bidding market, while retailers can contract for water resources with the regional water company. We are interested in stakeholders' views on:

a: the advantages or disadvantages bilateral markets might have compared with the trading arrangements currently available to them;

1 Economic Efficiency:

Investment Risk. In the case that investment is required to support market entry then the credit risk of the buyer is a key factor affecting investment. The mechanism by which the investor receives payment and the duration of a fixed equalisation payment (required to enable customer savings for new marginal projects) and from whom is key. We would recommend that the bilateral market enables options to support equalisation payments direct to the investor at risk. The electricity market has a number of mechanisms to draw on as examples such as the settlement agency for the Capacity Market.

Investment Risk. Investment requires a significant customer base to support a long term sales agreement. The benefit of a large secure volume regulated buyer should result in access to lower capital costs to the benefit of merchant developers securing bidding contracts when compared to bilateral market contracts.

Trading Incentives: The current trading incentives focus on raw water resource and not treated water with bilateral markets. **Recommendation:** We recommend that trading incentives should be available for treated water and raw water bilateral market entry to avoid any commercial bias.

Development risk: PR19 plans have provided development expenditure for business plan options and strategic resource options such that they are "shovel ready" at 2025 investment stage. It is not clear if 3rd party projects bidding into the PR19 process would gain access to development funding through the incumbent water company. In addition there are no apparent methods for development funding for bilateral market entry projects. This could place 3rd party projects (Bidding and Bilateral market entry) at a significant commercial disadvantage and could result in a significant barrier to market competition. This does not support efficient investment.

Chapter 6: "New large water resources investment will be added to the post-2020 RCV, which means that customers and not companies bear the majority of the risk of over-investment. This issue is particularly acute for schemes which include a large fixed capital expenditure (capex) requirement, which may mean that companies do not face an appropriate incentive to choose between options with large fixed cost and more flexible options which could reduce future risk to customers."

<https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Final-methodology-1.pdf>

We recommend that development risks are comparable to support efficient investment

Programme Risk: The project development programme for a new entrant will be costly and extensive and is unlikely to coincide with the incumbent's investment pipeline or the industry Price Review timescales. The cost and timing of the "bidding in" process is therefore seen as a barrier to entry and an alternative strategy to self-develop and supply is seen as less complex and more likely to have a higher probability of success. In addition incumbents may not be motivated to consider bid options after they have commenced development of their business plan options where their development cost (over investment) are at risk. A number of the company bidding processes require fine screening, which could now exclude projects pre 2025, and secondly without development they would not be at an investible stage when compared to in-house projects. The bilateral market would provide the market with innovative options in the case that they are commercially viable, and remove any perceived bias by a market dominant buyer.

Currently, water resource option appraisal takes place within a number of regulatory cycles linked to the water industry and environmental protection. Whilst this provides a structure for multi-sector stakeholder co-operation and scrutiny, it may lead to barriers to options development for sectors outside of Water Industry Regulation whose business drivers may be different and linked to very different cycles (or no cycles at all). Provision should be made to allow options occurring outside of the Water Industry cycles to receive due consideration.

Planning Control: planning rights in most cases have limited shelf life. The investment in developing bidding and bilateral market options to ensure planning is received in a suitable timeframe for investment at the price review stage will be difficult, and it is also unlikely that planning rights would extend for a second business cycle. The advantage of bilateral market entry is that investment can commence after securing planning and independent of price review programmes. This supports efficient investment.

Third Party Access: RWEG welcomes open access to Network+ such that raw and potable water sales to a retail company could result through bilateral market entry using S66 of the Water Industry Act 1991. This could be direct entry into the raw water transport or storage facility or via licence trading using rivers or canals as raw transport networks. Open access for resource suppliers into incumbent potable treatment works and distribution networks (regional and inter-regional) would require appropriate pricing, capacity and quality signals. This would support trading of water between resource and retailer using the bilateral market to support competition with incumbent suppliers. **Recommendation:** We recommend the ability for unbiased flexible access to the incumbent

treatment facilities and networks without excessive costs and unreasonable hurdles for onwards sale to Retailers.

2 Environmental Outcomes

Abstraction Licence Trading: RWEG proposed to utilise its river abstraction rights through dynamic inter-company sharing of water rights between power generation and public water supply (PWS). This innovative approach to a more flexible change of water use (purpose) is beyond the trading market as currently structured. RWEG therefore also welcomes the opportunity to engage with the RAPID team to identify and address trading issues required for joint infrastructure projects proposed by industry and water companies, including those that are not immediately next to each other or out of area, and develop regulatory frameworks so that the industry might have projects that are “construction ready” in advance of the 2025-2030 period. **Recommendation:** We recommend that bilateral market products (of a scale >5Ml/d) from industry are considered within the scope of the RAPID team.

Planning and Permitting “Demonstration of Need for bilateral development”: 3rd party options which are encompassed within business plans by definition can demonstrate a need for the project. Bilateral market options by definition would be an addition to the plan, however they should not be subject to a ‘need’ test since the bilateral market ‘product’ will be responding to network market signals. This need test bias has the unintended consequence of preventing market competition. **Recommendation:** We recommend that merchant bilateral projects should not be required to demonstrate a “societal need”.

The difficulty justifying a “need” for water results in a secondary problem with licencing policy potentially limiting licence rights shorter than investment requirements i.e. to just 5 years. **Recommendation:** We recommend that the review process for the abstraction activity within EPR is developed to recognise the need to give developers/investors the ability to manage their investment risk regarding early curtailment of the abstraction rights.

3 Public Health

In terms of public health – the Retail accountability of drinking water now is split with end retailers and wholesalers. Public health can be managed through existing commercial arrangements. The new challenge is where an incumbent water company does not control treatment, or the water source. Drinking water safety plans can cover both sources of raw or treated water to manage and monitor any risks for incumbents.

We propose that the water quality should be controlled at the point of entry to the incumbents network with regulatory management of key items such as quality, monitor-

ing and assurance. There should be little change from the competency requirements for the company entering the water into the network as currently managed by DWI. In the RWE case we propose a partner who is a regulated water company which has the advantage of using an existing competent company to manage Public Health. To progress the market we recommend the support of pilot projects and learning from example is needed, rather than theoretical development. The concerns should not arise if there is commitment to making pilots work (as was the case with Business retail market opening). **Recommendation:** We propose that a regulated water company manages the water at point of entry through commercial arrangements.

There is a risk that the quality standards set for new network access are higher than those existing for the incumbents existing network or are higher than that achievable using current technology as evident within some current open access standards. Acceptable standards to the regulator for Public Health are required. Compliance to new specifications could result in barriers or delays for new entrants. **Recommendation:** We propose that a technical third party has the role to provide arbitration in such circumstances.

4 Transportation (Network+ and Network Only)

Network Access: Currently the indicative treated wholesale water pricing is based on the cost to supply for the whole water resource zone, inclusive of all water resource assets, raw water acquisition, storage, movement, treatment, treated water storage, distribution, etc.

Bilateral market entry could be delivered by either Retail self-supply offsetting water purchase (Retail Pull) or segmenting the value chain and allowing Resource Providers supplying using elements of network infrastructure and selling to multiple retailers (Resource Push). In combination market liquidity would improve.

Value chain additions: to enable bilateral market entry an additional set of separate cost – based notional charges for network only PWS transportation services (excluding treatment) “Network Only”, would require a transparent and non-discriminatory structure. Any reasonable Network connection charges would be recovered by the incumbent and recharged on the average incremental costs basis in a similar manner to gas or electricity connection charges.

Transport Charging: We would like to understand how a transportation cost only arrangement would work. The methodology for establishing charges using the different network entry and exit points is currently undeveloped, as the current proposal for raw water is covered by the “Network plus Cost” rather than the potable water entry point which requires the trunk and local “Distribution Costs”. **Recommendation:** We recommend that a simple transport charging methodology initially to support market entry

based on a short run average cost basis, such as average volume p/m^3 charging which is simple and easy to administer when compared to distance related charging.

Point to point distance based charges would only be applicable out of catchment where they required bulk transfers out of resource zones. This would require price signals for inter-zone transfers. In the longer term the whole company approach may not be the appropriate method to calculate the actual costs to the wholesaler for raw water sourced, treated and transported only a few miles on their network to its customer. As the market matures this “short haul approach” may lead to bilateral negotiation or the introduction of short haul mechanisms to avoid the proliferation of self-build networks.

Recommendation: We recommend that price for inter zone transfers are transparent and published.

b: how bilateral markets could complement or conflict with existing mechanisms available for water trading;

Innovation: Increasing market competition through bilateral market and diversity of suppliers driven by commercial incentives i.e. lower customer costs, will increase the potential for innovation in the market and bilateral market competition will improve economic efficiency in delivery of new resources.

Licence Permitting “Use Limits”: It is possible for cross sector water sharing agreement to range in complexity from simple bilateral involving two locations to multi-lateral, multi-sector involving multi-locations, though designing abstraction permitting for appropriate environmental acceptability presents increasing challenge with increasing complexity. Such cross sector sharing agreements make a contribution to economic efficiency by delivering multiple types of products (energy/water volume, quality and resilience) across multiple ‘sectors’ (e.g. power, Public Water Supply, Environment) and begin to blur the boundaries of traditional silo-approaches in an innovative way.

In order to better promote water sharing opportunities through bilateral (and more complex) market arrangements we favour removing the specification of the ‘use’ (i.e. purpose) linked to a given water right. This would ease the development and pre-approval, where necessary, of water sharing agreements covering a variety of ‘uses’.

The ‘use’ is relevant to a test on the technical efficiency of water use (e.g. m^3 water used / unit product) which better sits with the permitting of an activity (e.g. power production, type of farming etc.) rather than with the water right itself. The water right need only specify the consumptiveness (in terms of the gross abstraction and return arrangements) which is needed in order to allow determination of environmental protection (and currently provides the basis of subsistence charges for the right)¹. To facili-

¹ This will require some consideration for the water industry in which there is no direct linkage between a given abstraction licence and a specific discharge through a sewage treatment works

tate efficient markets we do not encourage an approach in which the Environment Agency is a contracting party or arranger of contracts, though we recognise that the contractual arrangements will need to make clear to Environment Agency's satisfaction both how Environment Agency should pursue non-compliance and how appropriate environmental protection is to be assured.

Recommendation: To improve water trading or shared use we recommend the removal of the explicit specification of 'use' in favour of information on quantities and locations would streamline application assessments and render some variation applications unnecessary (e.g. for changes in bilateral arrangements where quantities and locations remain unaffected but the detail of activity using the water changes).

Water Trading – “Loss of Licence Rights”.

Ofwat note that bilateral markets would incentivise trade from a water-rich to a water-poor areas. However, we also see benefits for dynamic market-driven water sharing opportunities within a water-challenged area since these would not require out of catchment infrastructure to be in place.

In their Abstraction Licensing Strategy (ALS) documents (e.g. Thames Corridor, 2019) EA note that where the catchment is 'over-abstracted' trading only up to 'recent actuals' would be permitted in the water body up to sustainable limits. This position could lead to a real or perceived barrier to trading as act of water trading will reduce 'recent actual' abstractions having the unintended consequence or the perception that the Environment Agency would seek to 'claw back' a proportion of the proposed 'trade' or subsequently seeking to curtail the 'donor' right on the grounds that the donor had no 'need' for the traded water and this would act as a major barrier for bilateral or multilateral water sharing agreements of all types, including bilateral markets involving Public Water Supply and thus deter exploration of such options.

Given the likely economic benefit, we would urge DEFRA/Environment Agency and Ofwat to consider policy measures to maximise market opportunity in order to improve economic efficiency of water use and improve multi-sector resilience to water shortfall at improved cost-efficiency while retaining appropriate environmental protection, recognising the variation of abstraction actuals in various sectors which respond to market circumstances over a wide variety of timescales. In the power generation sector these timescales extend from half-hours (trading unit for energy) to decades (linked to the life-cycle of power station assets) during which economic value is generated, with and without physical water abstraction, in the same way that we may rely on the emergency

given the clean and dirty waste water networks. The return requirements could be achieved through imposing a suitable and verifiable duty on the waste water network operator (e.g. through the Drainage and Waste Water Management Plan.)

services yet have no recourse to call on those services, and this commercial use does not align with the Environment Agency's approach of 'recent actuals' scenarios.

However, we would urge the EA to consider further, given the likely economic benefit that would result, how the market water sharing opportunity could be maximised consistent with the requirements of Water Framework Directive (WFD). In WFD the 'hydrological regime' is only a supporting element for 'good' ecological status in rivers (requiring conditions consistent with occurrence of the appropriate biology) in contrast to the requirements for 'high' ecological status (which requires the quantity and dynamics of flow reflect nearly totally undisturbed conditions).

In this regard, we welcome the recent EA stakeholder programme seeking to establish more flexible interpretations of necessary flow requirements than would follow using the current UKTAG EFI approach which underpins ALS. Moreover, the meaning of 'use' of a right should be generalised from simply being regarded as occurring when water is pumped to include economic option value and trading value. 'Use' of a right should be recognised to include the considerable economic and societal value obtained in 'resilience' across the power sector, the public water supply sector, the agricultural sector and others derived from the potential to abstract water even if in a particular period water is not actually pumped. This value would be realised through water sharing agreements, of which a bilateral market opportunity is an example.

Additionally, a water right may reasonably be held in order to provide valuable future development opportunity or resilience regarding increasing need. Historic scenarios based on data on actual water pumped (e.g. 'Recent Actuals') do not necessarily fully reflect the commercial use and the socio-economic value of issued water rights. Thus, 'Recent Actuals' is not necessarily a sound baseline with respect to determine the 'no deterioration' aspects of environmental acceptability test in all scenarios.

Recommendation: Where the law permits, environmental acceptability should be determined having regard to the wide range of social and economic value which can be realised from a water sharing agreements including through bilateral markets. Historic scenarios based on data on actual water pumped (e.g. 'Recent Actuals') do not necessarily fully reflect the socio-economic value of issued water rights and could be a barrier to water sharing and or water trading where physical use changes.

Resilience

- **Stranded Assets:** there is a risk of initial oversupply in a resource zone that has low demand growth or results in large infrastructure projects. The value of resilience and/or offsetting existing supplies using networks across resource zones and/or regions should be assessed under the need for a project. **Recommendation:** We rec-

commend that the ability of incumbents to commercially transfer between zones is considered in project assessment.

- **Diversity:** We believe that supply diversity is part of resilience rather than viewing a bilateral entrant as a single point of potential failure, and the bilateral market will improve resilience through providing diversity of supply and programme mitigation of incumbent business plans heavily reliant on demand management options. Access to local resources provides opportunity to utilise rivers for raw water transfer without the risk of invasive species transfer. Access to underutilised bulk potable transfer networks provides the opportunity to provide resources from out of catchment providing diversity of rainfall and river flow risks. **Recommendation:** We recommend that a resilience test should be on a network basis and that individual projects for resources should not require the obligation to provide supply back-up capability to demonstrate resilience.
- **Assessment of Yield or Resilience? :** Some options such as large reservoirs or desalination plants main function is for supply resilience i.e. low utilisation; however the assessment is based on deployable output or full utilisation. Customer savings from insurance products could be possible if the measurement of resilience is separately assessed using peak event risk rather than simple average commodity output unit cost $MI \times \text{years} \times 100\% \text{ utilisation (AIC} \times \text{ Utilisation)}$. **Recommendation:** We recommend that peak event (low utilisation drought event) resources are evaluated separately e.g. the electricity capacity market.
- **Peak use:** Drought resilience headroom options assessed using existing static base use capacity WRMP modelling (Deployable Output) is not sophisticated enough to consider this potential of dynamic, short term use capacity (Peak use event output) resource management for evaluation of resilience . **Recommendation:** We recommend that a supply resilience test should be assessed on a peak capacity [1 in 100 to 500 year (MI)] test basis rather than annual average supply (MI/yrs.) to enable dynamic water sharing or insurance type low utilisation drought project such as desalination.

Addressing System Losses: The management and control of network+ system losses should be defined for bilateral market project to clarify roles and responsibilities in regards volume and charges. We have the following recommendations:

- **Volume:** The incumbents are funded during price reviews for the management of losses from the system. The bilateral market option should not be disadvantaged by contributing twice for system losses in terms of charging or volume losses.

- **Volume:** It is proposed that transport charges should be based on a 1 to 1 volume in/out balance with no secondary charging using volume for network losses.
- **Price:** The transportation company retains a direct incentive to manage the cost of losses, trading off the cost of reducing leakage against the cost of paying for lost water. The equalisation payment reference cost project should also include the cost of compulsory projects such as managing leakages as an avoided project such that the market is able to determine best value.
- **Losses Market:** A put option to sell water to incumbents linked to network demand management and leakage projects costs would incentivise the economic management of losses similar to demand reduction proposals in WRMP. The bilateral water supply project could bid in competition for demand management leakage or pressure management projects giving a direct market test to customer costs for economic leakage rates.

Unintended and/or practical consequences:

Supply scarcity: Investment in assets to support supply resilience requires long term market signals. The proposed abstraction licence reform and current short term flexible environment trading of river flows limits (drought permits) to alleviate summer shortages will affect market signals to support long term strategic trading and resource investment. In order to encourage more societally efficient management of drought conditions, the current approaches should be generalised to consider options such as those deliverable through bilateral markets from other sectors which may avoid or reduce use of drought permits and orders. We recommended that the RAPID strategy for improving resilience provides clarity on providing short term changes to environmental limits supporting supply during scarcity events as this conflicts with the market approach to delivering strategic projects and water trading.

Customer Size: the 5MI threshold is a limit on the existing customer base and retailer focus to date. **Recommendation:** We recommend that the market size for Retailers is increased.

C: whether they have any preference between the existing arrangements and bilateral markets (if so, why).

Cost Savings: The bilateral market enables a resource supplier to provide water to a Retailer in competition with incumbent wholesale prices. This provides wholesale supply price options supporting customer savings.

Market Access: The complexity and risk of an incumbent securing third party trades is higher than in-house projects reducing their apparent value. It is unlikely that a bidding

project rejected in a business plan would be accepted between price reviews. The bilateral markets provide better control over costs and programme to support merchant plant without reliance on a monopoly buyer. The bilateral market therefore enables the development of merchant project for organisations which are unlikely to retain competencies and resources between the price review periods.

Question 3. The legal framework allows for a number of consequential changes to regulatory instruments (such as licences and codes) to effectively implement bilateral markets. We welcome views from stakeholders on:

a: The key policy benefits that they consider need to be captured and the best means of doing this;

Equalisation Payment: The proposal is that the equalisation payment will ensure that efficient third party providers, who are able to provide additional water resources at lower cost, and is key to reducing customer costs through the introduction of competition with incumbents.

WRZ Trading Location: Water resources equalisation price could be at a resource zone or a whole company basis contingent upon existing transfers. Where water is transported by network access across WRZ to customers then the equalisation payment reflects the benefits realised by the incumbent in offsetting resources to the benefit of the environment such as lower demand on chalk streams etc. This value driver via bilateral market entry is influential in supporting inter regional trading and transfers between regions supporting the RAPID strategy for improved resilience.

b: The key policy risks that need to be mitigated, and the best means of doing this;

Equalisation Payments: The mechanism by which the investor receives payment and the duration of fixed equalisation payments and from whom are key. We would recommend that in the bilateral markets the investor risk for receipt of the equalisation payment is reduced. The electricity market as a number of mechanisms to draw on as examples such as the settlement agency for the Capacity Market.

- We recommend as an additional option, the equalisation payment (currently the self-supply retailer) should also be to the Seller of water into the network to incentivise new resources to enter the bilateral market (Resource Push).
- We recommend that the equalisation payment is transparent and published.
- We recommend that the equalisation payment is based on the marginal cost of future new water.
- We recommend that equalisation payments are long term (ca 25 years) and indexed to support investment and that the counterparty for the payment is a regulated body.

Transport Charging and Access: the physical and commercial terms for open access to network and Network+ is required. It is recommended that this is as simple as possible at this early stage of market opening.

- We recommend the pricing and publication of network costs and regional bulk pipelines.
- We recommend that a simple transport charging methodology initially to support market entry based on a short run average cost basis, £/m³ charging simple and easy to administer.

Project Cost Evaluation: The current average through life cost evaluation methodology MI/year (AIC) is able to compare options which are fully utilised through life (Capacity + 100% volume). Economies of scale on large capital intensive options appear competitive with lower capital smaller projects. When the low initial utilisation of larger assets is taken into account the AIC unit cost assessment would signal significant consumer costs and likely change current development plans.

In the case of innovative flexible projects for peak use/ low probability [1 in 100 to 500 year events] events low utilisation capacity insurance options should be viable projects. If they are to be appropriately assessed and incentivised then capacity and volume (utilisation) should be valued separately. The trading market currently evaluates third party options on a full utilisation comparable basis and innovative dynamic solutions for drought insurance are rejected. The buyers for these products are not Retail companies so the alternative of the bilateral market entry is not possible.

The driver for additional resilience by the National Infrastructure Commission “Preparing for a drier future” identifies the difficulty of how to price resilience benefits.

“Because serious droughts are rare events they are hard to ‘price’ in a system of economic regulation. Customers find it very hard to understand the risk of low probability, high impact events.” The costs of resilience are immediate and certain but the benefits are deferred and uncertain. Whilst the costs of proactive long-term resilience improvements roughly scale with additional capacity, the costs of emergency measures rise more dramatically for the most extreme events.”

To support transparency of costs for market competition the current WRMP shadow market “Market Information Database” provides indicative unit costs based on full asset utilisation (WAFU) of the assets. This shadow price is less effective for resilience projects where by definition drought events are rare. An efficient market should deliver smaller scale higher utilised projects ahead of large scale low utilised assets.

The current shadow prices support capital intensive solutions for extreme event resilience and does not stimulate innovative solutions i.e. projects with lower capex/ higher opex costs such as intercompany transfers, peak price trading using third party storage, industry demand management or peak demand logistics for rail/ road / shipping etc.

We believe that lower costs to consumers would result for drought event risk management by applying an utilisation factor and a precautionary approach would to enable both capital and flexible options to evolve in a transparent and non-discriminatory market. The current annualised unit cost AIC (full utilisation of water) economic evaluation methodology does not support development of flexible options. **Recommendation:** We recommend that a separate Capacity Payment type evaluation methodology rather than a lifetime commodity evaluation is considered to support market competition for resource options to meet Peak Event scenarios.

End.