CONSULTATION *(GENERAL)*

دائـــرة الـطـــاقـــة
DEPARTMENT OF ENERGY

RECYCLED WATER FIRST REGULATORY CONTROL (RW RC1) FINAL PROPOSAL PAPER

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Foreword

In 2018, the DoE commenced the first regulatory control review for the recycled water distribution and supply companies in the Emirate of Abu Dhabi through a consultation process. The recycled water distribution and supply companies in the Emirate of Abu Dhabi are:

(a) Al Ain Distribution Company (AADC); and

(b) Abu Dhabi Distribution Company (ADDC)

The first consultation paper was published in June 2018, and the second consultation paper was issued in December 2018. The draft Proposal Paper was issued in September 2019.

The DoE received detailed responses to the draft proposal paper from the licensees, Department of Finance (DoF), and ADPower. Moreover Abu Dhabi Development Holding Company was also consulted on the approach for the initial regulated asset value, specifically for the assets transferred from ADSSC to the distribution companies. This document sets out our final proposal for the recycled water first regulatory control (RW RC1) taking into account these responses and discussions.

This final proposal paper also includes the financial model for the RW RC1.

AADC and ADDC's licences for recycled water expressly state that the DoE may, at its discretion, and following consultation with the licensee, amend their respective licences, to take account of new information subsequent to the issue of the Licence.

MOHAMMED BIN JARSH AL FALASI
Undersecretary-Department of Energy

Executive summary

Introduction

1. This document presents the final proposal for the RW RC1. In September 2019, we published the draft proposal paper, and received responses in October /November 2019. In this final proposal, we summarize the responses to the draft proposal paper as well as the results of our engagement with the sector since February 2019, and set out our final proposal for the RW RC1. This document also includes the financial model for the RW RC1, and sets out the MAR for the RC1 period.

Form of Controls

1. In view of the supportive response to the first and second consultation and the draft proposal papers:

   (a) The basic form of price control will adopt the multi-year CPI-X revenue controls;

   (b) The pass-through costs arrangements will include the license fees and the wholesale purchases, if any; and

   (c) The price control period will be from 1 Jan 2018 to 31 December 2021, and , in order to align with the current issued licence, will be effective as of 1 January 2018.

2. In relation to revenue drivers, the MAR will be calculated in fixed terms only, considering the responses of the companies that it is only a two year price control and due to the nascent nature of the business. However the DoE sees merit in retaining a variable element as discussed in more detail in Section 2 which must be considered in the next price control.

3. There are no specific performance incentives proposed for this first price control, in line with the responses from the distribution companies. The DoE recognises that the RW RC1 incentives would effectively apply only for two years. In addition, incentives will be more effective where data collection in the

recycled water sector is robust and ideally there is historical data to support the companies' performance. Given the recent creation of the recycled water businesses, the DoE considers that postponing the development of specific recycled water incentives for the RC2 is a pragmatic approach at this stage.

Inputs to the Price Control Calculations

1. The DoE will adopt the opex projections communicated by the companies as discussed in this final proposal to include the manpower, outsourced O&M costs, pump station energy consumption and consultant costs to be incurred as a result of the network condition assessment.

2. Some elements of the opex allowance will remain adjustable over the course of the price control. These include the energy consumption of the new recycled water network under construction by ADDC during the period as well a provisional allowance above the outsourced O&M contact value for AADC.

3. On the issue of initial RAV, at the sector continuous request, the DoE final proposal is to set the initial RAV equal to the net book value of the assets transferred from ADSSC to the distribution companies as discussed in Section 4.

4. On future capex allowances, some projects with ADDC have been assessed on an ex-ante basis and the related allowance will be provided in accordance with the result of the ex-ante capex review. For the remaining projects with ADDC and all the projects with AADC during the price control period, we have considered the capex planned without including any efficiency assessment factor. The MAR will then be adjusted once the ex-post capex efficiency review is concluded.

5. On depreciation, we propose to apply the approach agreed by distribution companies in response to the first and second consultation papers, by applying straight-line depreciation and a regulatory asset life assumption of 40 years for new recycled water assets. For the existing assets transferred from ADSSC, regulatory asset life assumptions will be the same as applied to ADSSC.

6. On the WACC, we propose to use a rate of 4.6% for the RW RC1, consistent with the WACC applied for the electricity, water and wastewater RC1 (2018 – 2021).

Price Control Calculations

1. The opex costs incurred in 2018 and 2019 are proposed to be passed-through subject to cost justification.

2. The DoE's final view for the notified value 'a', applicable from 2020, is summarised below. The notified values given in this table (to the accuracy to decimal places expressed therein) will be those used to calculate MARs when the price controls are implemented.

Table 1: Results

Results		2020
X Factor		0.00
AADC Fixed revenue term (a)	AED million	48.79
ADDC Fixed revenue term (a)	AED million	151.62

1. Glossary

AADC	Al Ain Distribution Company
ADDC	Abu Dhabi Distribution Company
ADHC	Abu Dhabi Development Holding Company
ADSSC	Abu Dhabi Sewage Services Company
ADWEA	Abu Dhabi Water and Electricity Authority (now merged within DoE)
AIS	Annual Information Submission
Capex	Capital Expenditure
CAPM	Capital Asset Pricing Model
CPI	Consumer Price Index
DoE	Department of Energy
DoF	Department of Finance
DPM	Department of Planning and Municipalities
DSM	Demand Side Management
FTE	Full Time Employee
EAD	Environmental Agency of Abu Dhabi
EWEC	Emirates Water and Electricity Company, (previously, ADWEC)
ISTP	Independent Sewage Treatment Plant
KPI	Key Performance Indicator
MAR	Maximum Allowed Revenue
NPV	Net Present Value
O&M	Operation and Maintenance
Opex	Operating Expenditure
RC1	First Regulatory Control covering the period 2018-2021
PCR	Price Control Return
PIS	Performance Incentive Scheme
RWPA	Recycled Water Purchase Agreement
RAG	Regulatory Accounting Guideline
RAV	Regulatory Asset Value
RIG	Regulatory Instructions and Guidance
SBA	Separate Business Account
STA	Sewage Treatment Agreement
TA	Technical Assessor
TRANSCO	Abu Dhabi Transmission and Despatch Company
WACC	Weighted Average Cost of Capital

2. Introduction

2.1 Introduction

2.1.1 From 1 January 2018, AADC and ADDC have been licensed as the entities responsible for the distribution and supply of recycled water in their respective geographical areas. AADC and ADDC have monopolies for the distribution and supply of recycled water in their respective geographical areas. In order to ensure the recovery of the efficient costs by the recycled water businesses, the Department of Energy (DoE) will establish the first regulatory controls for the recycled water businesses (RW RC1), which will be effective from 1 January 2018.

2.1.2 As discussed in Section 3 below, we are establishing a price control for the recycled water distribution and supply businesses of AADC and ADDC, which caps the total revenue that they can recover from providing recycled water services. This would be consistent with the present form of price controls for network companies in the water and electricity sector.

2.1.3 This document presents the DoE's final proposal for the recycled water first regulatory control, RW RC1. In June 2018 RW RC1 first consultation paper was published, and the stakeholder's responses were received in September 2018. In December 2018, the 2nd consultation was published and responses were received in February 2019. In September 2019, the draft proposal paper was published and responses were received in October 2019. This document describes the final proposal for the recycled water first regulatory control for ADDC and AADC taking into account their responses. This document also includes the financial model for the RW RC1, and sets out the MAR for the RC1 period. This final proposal forms the basis of the license modification.

2.2 Recycled water – sector structure

2.2.1 It has been decided to unbundle the recycled water sector, with effect from 1 January 2018:

(a) ADSSC is responsible for all activities in the wastewater sector related to the production of recycled water; and

(b) AADC and ADDC are responsible for the distribution and supply of recycled water to end-users in the Emirate of Abu Dhabi.

2.2.2 Up to the beginning of 2018, ADSSC has been providing recycled water to customers mainly for irrigation purposes. The largest customers are Abu Dhabi City, Al Ain City and Al Dhafra Region Municipalities. ADSSC also had some distribution and supply network, which delivered recycled water to other users (e.g. farmers). Under the new structure, ADSSC acts as a producer of recycled water, and sells the recycled water produced by Independent Sewage Treatment Plants (ISTPs) and ADSSC itself to AADC and ADDC at a wholesale

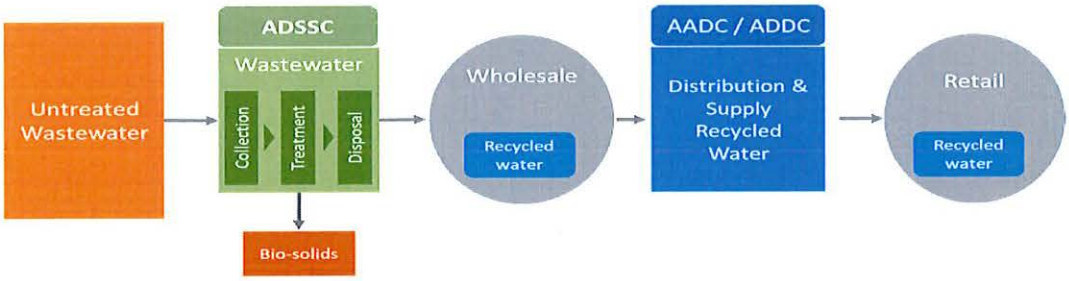

Figure 1: Structure of the recycled water sector

tariff.

2.2.3 During 2018, the two distribution companies have been in the process of acquiring assets and resources previously held by ADSSC and the municipalities, and establishing:

(a) An asset register defining the interface points between the recycled water suppliers, the recycled water operators and the end-user. The register will ensure that all assets used to distribute recycled water for non-potable water purposes are recorded and described in terms of their condition, capacity, age and performance; and

(b) Estimates supported by audited statements for asset values, current and future capex and opex, and volumes of recycled water to facilitate this regulatory control review. The recycled water business assets in Abu

Dhabi are presently understood to comprise a network of approximately 1050 km and 494 interface points. ADSSC produced 300 million cubic meters of recycled water in 2018, of which 56% was made available to municipalities for irrigation of public areas and mainland plantations, with the remaining 44% disposed to the environment.

2.2.4 At the time of the publication of the draft proposal paper, the asset register was in the process of being completed. Following the meeting on 17 November 2019, we understood that the status of the asset survey and future capex requirements is not yet finalized and will most likely only be ready in time for the next price control. In the interim, AADC requested a provisional allowance in addition to their estimated costs for the outsourced O&M to cover risks associated with poor condition of pump stations and network handed over to them from the municipality. This will be further discussed in the operating expenditure section.

2.2.5 In parallel, the DoE intends to develop an overall water outlook to promote greater usage of recycled or grey water while encouraging efficient usage of desalinated water produced and conserving groundwater. This overall water outlook will consider all sources of water. Informed by the outlook an overall water management policy is expected to be completed by 2020 since EAD are conducting their Integrated Water Resources Management Study.

2.2.6 In their response to the draft proposal paper, AADC highlighted the need for DoE and AADC to coordinate to ensure there is no impact on the price control.

2.2.7 In the meantime, the existing recycled water policy should be used as the basis for the direction of the recycled water sector. In this policy the DoE has made clear the key objective of maximizing utilization of recycled water, which should be the key aspect for the distribution companies to consider in terms of designing their business plans.

2.3 Wholesale and retail tariffs

2.3.1 AADC and ADDC are responsible for distributing and supplying the recycled water procured from ADSSC to the customers at retail tariffs. The retail tariff should allow AADC and ADDC to recover the recycled water wholesale price and their distribution and supply costs (as determined by the price controls, which is the subject of this price control review), from different customer segments.

2.3.2 The wholesale tariff for recycled water is intended to cover ADSSC's costs related to the production of recycled water. ADSSC proposed a methodology for allocating its costs between wastewater and recycled water related activities and a mechanism for recovering these costs through a wholesale tariff.

2.3.3 The DoE is currently engaged with ADSSC to review and finalize their proposal on the wholesale tariff. The DoE is also engaged with the distribution companies to review their proposal on the retail tariff. We anticipate both these reviews to be concluded in 2020.

2.3.4 In their response to the draft proposal paper, AADC argue that discos need not pay for the wholesale recycled water as ADSSC is obligated to treat the wastewater. In the meeting on 17 November 2019, the DOE clarified that the tariff work stream, in which AADC is involved, established that ADSSC must be allowed to recover part of its MAR from the recycled water. Moreover, in relation to the price control, the wholesale recycled water costs incurred by discos will be treated as pass through costs.

2.3.5 ADDC stated in the meeting of 17 November 2019 that an agreement needs to be made about the timing of the pass through costs, before or when the recycled water tariffs are implemented.

2.4 Regulatory framework

2.4.1 AADC and ADDC have taken over the distribution and supply of recycled water in the Emirate of Abu Dhabi effective from 1 January 2018. Accordingly, on 29 November 2017, the DoE issued the recycled water distribution and supply

licences to AADC and ADDC, further to which we are now conducting this first price control review.

2.4.2 AADC and ADDC have monopolies for the distribution and supply of recycled water in their respective geographical areas.

2.4.3 This price control review will be governed by the statutory requirements of Law No (2) of 1998 and Law No (11) of 2018. In addition, AADC and ADDC's licences for recycled water state that the DoE may, at its discretion, and following consultation with the licensee, amend their respective licences, to take account of new information subsequent to the issue of the Licence. These licences expressly recognise such adjustment mechanism in Part 1 paragraph 2 and Schedule 2.

2.4.4 Due to delays in issuance of this final proposal paper due to pending information, letters were issued to AADC and ADDC on 26 December 2019 stating DoE's intent to modify their license with the same conditions by 31 March 2020.

2.4.5 Price controls for the electricity, water and wastewater sectors, which form the foundations for this RW RC1 price controls review, are available in the consultation and proposals documents available at the DoE's website (www.doe.gov.ae).

2.5 Overall Timeline

2.5.1 This review span over a period of about 2 years to provide sufficient opportunity for stakeholder discussion and consultations on the key issues. The timetable involved four (4) consultation and proposal documents published by the DoE, in addition to workshops, presentations and meetings at various stages. It allowed the companies around 30 days to respond to each consultation and proposal paper.

2.5.2 Table 2 of this final proposal paper sets out the timetable of this review.

2.5.3 DoE has generally received a supportive response from the companies to its first and second consultation, as well as on the draft proposal. The responses

to the particular issues are discussed in the relevant sections of this paper. As mentioned elsewhere in this document, the companies and DoE have also discussed certain issues relating to the first price control during meetings in February, March, June, July, and November 2019. Moreover, DoE discussed with DoF and ADHC the treatment of the initial RAV provision for the assets transferred from ADSSC to AADC and ADDC.

2.5.4 Due to the nascent nature of the business, the companies have been unable to provide sufficient justification for their business plans and cost projections, as will be discussed in subsequent sections.

Table 2: Timetable for Price Control Review

Approximate date	Task
25 June 2018	DoE published the **First Consultation Paper**
10 September 2018	Companies responded to First Consultation Paper
31 October 2018	Companies submitted 2018 Annual Information Submissions (AIS)
24 October/ 8 November 2018	Meeting/workshop with companies
31 December 2018	DoE publishes **Second Consultation**
January/February 2019	Meeting/workshop with companies
February 2019	Companies respond to Second Consultation
12 Feb 2019	Meeting/workshop with companies
28 March 2019	Meeting/workshop with companies
April 2019	Companies submit 2018 audited SBAs – nothing on recycled water business
8 July 2019	Meeting with AADC. ADDC declined to attend.
11 September 2019	DoE Published Draft Proposal
October 2019	Companies respond to Draft Proposals
17 November 2019	Meeting/Workshop with companies
December 2019	Response from ADHC on Initial RAV Provision
06 February 2020	DoE publishes **Final Proposals**
06 February 2020	License modified to give effect to price controls as of 1-1-2018

2.6 Structure of this document

2.6.1 The remainder of this document is structured as follows:

- Section 3 discusses the structure, scope and duration of the first regulatory controls for AADC and ADDC's recycled water businesses.

- Section 4 discusses the main inputs to the price control calculations for AADC and ADDC's recycled water businesses.
- Section 5 describes the price control calculations used in formulating the Final Proposal Paper, with these calculations presented in Annex A to this document.

3. Form of Controls

3.1 Introduction

3.1.1 This section discusses the overall design of the first regulatory control for the recycled water distribution and supply businesses, which will be used as the basis of the price control calculations discussed later in this document.

3.1.2 The first and second consultation papers, as well as the draft proposal paper, raised a number of issues in relation to the structure of the price control, which are addressed in setting the regulatory control for the recycled water distribution and supply companies. This section further discusses these issues and mitigations in the light of the companies' responses.

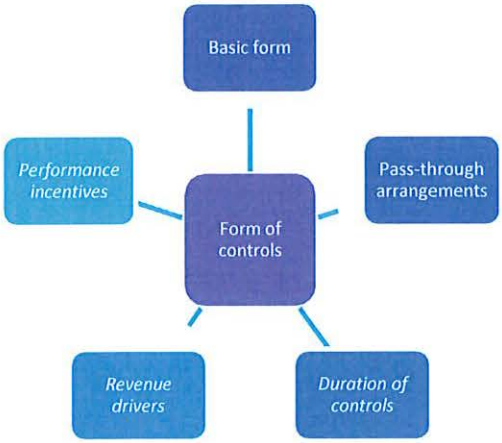

Figure 2: Assessment of Form of New Controls

3.2 Basic form of price control

3.2.1 The first consultation paper proposed to use the multi-year CPI-X revenue controls for the recycled water distribution and supply business, which is the main mechanism for the economic regulation of the network licensees in the electricity, water and wastewater sector. The framework caps the revenue that a licensee can recover from the customers in any year during the control period. The revenue cap or maximum allowed revenue (MAR) is set on a forward-looking basis using three main building blocks, namely: operating expenditure (opex), regulatory depreciation and return on capital. The MAR is constrained

to change each year by the UAE CPI inflation and an 'X' profiling factor. Within this framework, the X factor is meant exclusively for profiling the MAR over the price control period, and is set to zero.

Responses and assessment

3.2.2 The two distribution companies agreed to the appropriateness of the CPI-X regulation in the first consultation paper, and no further discussion / comments were provided in the second consultation phase.

Final Proposal

3.2.3 In view of the supportive response, the basic form of price control will adopt the multi-year CPI-X revenue controls.

3.3 Cost pass-through arrangements

3.3.1 As discussed in previous consultation papers, in line with the price control arrangements for the electricity, water, and wastewater network companies, we proposed the following costs to be passed-through for the recycled water distribution and supply businesses, since the businesses have no or little control over them, and these are already subject to regulation (via an economic purchasing obligation or price controls) or competition:

(a) The distribution and supply companies' bulk recycled water (wholesale) purchases from ADSSC; and

(b) The DoE's annual licence fee.

Responses and assessment

3.3.2 ADDC supports the proposal for the treatment of wholesale purchases from ADSSC and the DoE's annual license fee as pass-through costs, assuming that an agreement is reached on the establishment of the wholesale tariff.

3.3.3 The wholesale tariff and its treatment in the price control was further discussed in the meetings held with the companies over the last months. During these meetings, the DoE explained that passing through any wholesale costs

whichever they will be – is the most appropriate approach to deal with this cost component within the RW RC1. The distribution companies were content with this explanation and the approach proposed by the DoE.

Final Proposal

3.3.4 In view of the supportive response, we will maintain the pass-through costs arrangements put forward in the previous consultation papers.

3.4 Duration of controls

3.4.1 The first consultation paper, proposed to align the RC1 period for the recycled water business to the electricity, water, and wastewater sector. The RC1 period will span over a period of four years (2018-2021). In order to align with the effective date of the current RW licences, the RW RC1 controls will apply for the period from 1 January 2018 to 31 December 2019. For the period from 1 January 2020 to 31 December 2021 it will apply under the financial arrangements laid out in this document, with annual review (for 2020 and 2021) of specific elements of opex and capex. The next section discusses in further detail the proposed approach for opex, depreciation and return on capital, in particular for 2018 and 2019 which are the years when the price control review is being undertaken.

3.4.2 AADC and ADDC's licences for recycled water, issued in November 2017, provides an express adjustment mechanism so that DoE can, following consultation, make changes to Schedule 2 of the licence in order to give effect to the outputs resulting from these price controls review.

3.4.3 Letters issued to AADC and ADDC on 26 December 2019, state the DoE's intent to extend the license modification deadline to 31 March 2020 in order to allow for further and final consultation with AADC and ADDC.

Responses and assessment

3.4.4 During the engagement with AADC and ADDC in the second consultation stage, the companies accepted that price controls are a mechanism to allow

cost recovery. As the businesses were established in 2018, the price control period will begin in 2018.

3.4.5 Both AADC and ADDC support a recycled water price control that aligns with RC1 for the electricity, water, and wastewater sector with a duration of 4 years until 2021, with the price controls for 2018 and 2019 applied effective for the period 1 January 2018 to 31 December 2019..

3.4.6 The Draft Proposal Paper mentioned that the information required from AADC and ADDC to be able to publish the final proposal includes:

(a) Opex forecasts justification;

(b) Asset register, condition assessment, and valuation;

(c) Refinement of capex projections.

The DoE have received most of the information requested except for the asset register and condition assessment as they are not yet ready. It is assumed that the capex requirements to rehabilitate the existing network will only be made available for the next price control.

Final Proposal

3.4.7 This final proposal will adopt the price control period from 1 January 2018 to 31 December 2021, with the price control applied effective for the period 1 January 2018 to 31 December 2019

3.5 Revenue drivers

3.5.1 The previous consultation papers discussed the choice of revenue drivers. The selection of appropriate weights for the revenue drivers should reflect a number of considerations, including the cost structure of the business (allocating risks from demand growth appropriately between the distribution network businesses and end users) and providing desirable incentives - for example, for licensees to serve new customers and improve system metering.

3.5.2 The first consultation paper discussed two options:

(a) Expressing the MAR in fixed absolute terms only (subject to inflation indexation and profiling), without the variable elements linked to the output-based revenue drivers. This approach was also considered in the initial stages of the price controls consultation for the electricity, water and wastewater sector; or

(b) Express the MAR as a function of both a fixed element and a variable element, with weightings of 85% and 15% respectively. In this case, the revenue driver for the variable component would be the volumes of metered recycled water supplied to end users, consistent with the RC1 price controls for water, wastewater and electricity sector.

3.5.3 The first consultation paper proposed to calculate the MAR for these years in fixed terms only for the period 1 January 2018 to 31 December 2019..

3.5.4 ADDC's response to the first consultation highlighted their concern with uncertainty in availability of recycled water due to the risk of decreasing population. Both distribution companies also stated they are interested in having a revenue driver for the quantities of recycled water supplied, as this would incentivise both companies to supply more recycled water and replace usage of potable water wherever possible.

3.5.5 DoE assessed that the risk of reduction in recycled water generation by ADSSC was likely to be minimal, as their wastewater forecasts show a steady increase. The DoE was therefore still seeking the distribution companies views on the revenue driver in the second consultation paper, as having a variable element linked to the volumes of recycled water supplied could possibly better balance the uncertainty in the development of the recycled water businesses – for example providing more revenue to the companies if the actual supply is more than forecasted, or less revenue if actual volumes are below the forecast.

3.5.6 In their response to the draft proposal paper:

(a) AADC stated that the risk of reduction in recycled water generation by ADSSC cannot be regarded as minimal in the meeting on 17 November 2019, the DoE stated that it acknowledges AADC concerns, however

the planning and forecasting process in the sector should help AADC in mitigating this risk.

(b) Both AADC and ADDC preferred for these first price controls to have a fixed term only, as in their view the uncertain nature of the recycled water produced can impact the ability for meeting the demand. The companies suggested that the use of a fixed and a variable element can be further explored in the next price control.

3.5.7 The DoE notes that uncertainty of recycled water production is unrelated with the revenue driver in the price control. In effect, the aim of the revenue driver in the MAR is to appropriately balance risks between suppliers and end users in face of (unanticipated) demand variability, reflecting also the variable nature of certain types of costs that the distribution companies may face when providing recycled water services. Balancing supply and demand is therefore beyond the scope of revenue drivers in the price control.

3.5.8 Nonetheless, since this price control will only apply for two years on a forward looking basis, and due to the nascent nature of the business, and in the interest of a collaborative approach with the sector, at this time the DoE can accept expressing the MAR in fixed terms only. However, this should not be considered as the default approach going forward, and the DoE will maintain in its price control framework in the future the appropriate assessment of the role and scope of appropriately defined revenue drivers.

Final Proposal

3.5.9 In view of the above, this final proposal sets out that the MAR is calculated in fixed terms only (without any variable revenue driver) for the entire duration of the price control.

3.6 Performance incentives

3.6.1 The first consultation sought the stakeholders' views on using incentives for timeliness of submissions and any other areas. The responses to the first consultation were not conclusive, and further engagement with the sector

identified that the distribution companies deem the performance incentives scheme as complex.

3.6.2 In the second consultation, the DoE sought the companies views on:

(a) identifying specific aspects of complexity generally within the incentive mechanism/elements included in the DoE's price controls, and

(b) any proposals to re-design the incentive scheme to avoid such complexities;

3.6.3 Furthermore, the second consultation sought the companies' views on proposals for incentivising recycled water metering, as this was suggested by the companies in their response to the first consultation.

3.6.4 The DoE sought views in the second consultation and the option not to include performance incentives in the RW RC1, given the business has been recently created and the companies perceived complexity in successfully implementing any incentive scheme.

3.6.5 Both ADDC and AADC stated in their responses to the second consultation paper that they do not recommend the use of a performance incentive scheme during the first price control, given the short two year duration and the nascent nature of the business. Both agree that performance incentives can be explored in the future price controls once the business is more mature.

3.6.6 The DoE notes that the incentives mechanisms in the price controls have been established for a number of years and have been relatively stable. However, the DoE recognises that the RW RC1 incentives would effectively apply only for two years. In addition, incentives will be more effective where data collection in the recycled water sector is robust and ideally there is historical data to support the companies' performance. Given the recent creation of the recycled water businesses, the DoE considers that postponing the development of specific recycled water incentives for the RC2 is a pragmatic approach at this stage.

Final Proposals

3.6.7 In view of the responses to the second consultation paper and our assessment above, it is proposed to proceed without performance incentives in this first regulatory control.

3.7 Price controls structure and calculations

3.7.1 Based on the previous RW RC1 consultations and the discussion above, the MAR for the recycled water distribution and supply businesses of each company for each year of the price control duration is determined as follows:

MAR = Pass through costs + a – K

Where:

(a) Pass-through costs are the costs which are subject to competition or regulation elsewhere in the sector and are allowed on an actual basis.

(b) 'a' is a fixed component (in UAE Dirhams). 'a' is set by the DoE for year 2020 and is then automatically adjusted each year for (i) the UAE Consumer Price Index (CPI) inflation for the previous year and (ii) an 'X' profiling factor set by the DoE.

(c) 'K' is the correction factor adjusting any over or under-recovery of revenue in the preceding year.

3.7.2 This is further discussed in Section 5.

4. Inputs to the Price Control Calculations

4.1 Introduction

4.1.1 This section discusses each of the following inputs required for the price control calculations presented in Section 5 of this document:

(a) Opex projections

(b) Initial regulatory asset value (RAV)

(c) Future capital expenditure

(d) Depreciation Assumptions

(e) Cost of capital

4.2 Operating costs

DoE's proposed approach

4.2.1 Initially, the DoE proposed using a high level top-down approach to forecast future efficient opex cost projections for 2020 and 2021 based on actual costs reported for 2018 in the SBAs submitted by April 2019. The approach for 2018 and 2019 would be that the companies can recover their actual costs for those years as long as they are reasonably justified.

4.2.2 The response of both AADC and ADDC to the first consultation stated that using the 2018 actual opex as a baseline for projection was not possible. The limited opex spending by the companies in these initial stages of the businesses implementation means that the actual cost in 2018 is not representative of the costs that the fully operational working businesses are expected to incur in the forthcoming years. On this basis, the distribution companies recommended the use of a simple high-level approach to develop opex projections for the first price control, without however indicating what in their view such approach would be.

4.2.3 The second consultation paper, in order to establish an initial view on the opex allowance requirements, proposed to:

(a) use the outsourced O&M costs for the period 2018-2021 as the best estimate for total opex projections for the recycled water businesses;

(b) not include any costs with AADC and ADDC FTEs, given the potential degree of substitution from outsourced resources; and

(c) for simplification at this stage, not include any opex efficiency factor in the calculation of the RW RC1 MAR (which is subject to change depending on the supporting evidence provided by the companies during the engagement period leading to the publication of this draft proposal.)

4.2.4 The second consultation paper proposed that close engagement would be required with the sector to understand their business plan/strategy covering the RW RC1 period. It was expected that the sector would submit business plans justifying the proposed manpower, any outsourced resources, and any other operating costs (where the focus should be on the justification for the number of FTEs and role they will be playing in delivering the business plan).

4.2.5 The distribution companies and the DoE are aligned on the approach to allow the companies to recover their actual costs for 2018 and 2019, subject to these costs being reasonable justified by the distribution companies.

4.2.6 In their response to the 2nd consultation, the companies objected to the DoE recommendation to only use the outsourced O&M costs as an estimate for opex projections since this does not cover the full operational costs of managing the business (e.g. the costs required to manage the outsourced O&M contracts). On this basis, ADDC stated that opex allowances should cover the following four components:

(a) Costs associated with manpower

(b) Outsourced O&M contracts costs

(c) Costs of appointing consultants to support the development of the network and condition assessment of current network.

(d) Shared costs with the electricity and water businesses to be determined consistent with the SBA allocation methodology agreed with the DoE

4.2.7 Following receipt of the responses to the second consultation from the companies, the DoE engaged closely with the companies to understand their opex cost projections and assess its reasonableness. During this engagement:

(a) Based on the analysis of the information provided by the distribution companies, the DoE challenged the initial manpower projections for 2019 in light of actual hiring activities.

(i) For AADC, it is understood that 5 FTE will be hired for the last 4 months in 2019.

(ii) For ADDC, 6 FTEs have been hired recently with an additional 4 to be hired in the last 4 months of 2019.

(b) The DoE also asked for additional evidence on the competitiveness of the tendering process for the outsourced operation and maintenance (O&M) contracts, based on which it will be able to assess the degree to which these costs can be deemed efficient.

(c) AADC's O&M contract for the municipality assets does not expire until end of 2019. The outsourced O&M contract for ADSSC assets handed over to AADC did not expire until March 2019, after which AADC renewed the contract on a single source basis based on the value of the existing contract with ADSSC. However, AADC have requested an amount greater that the combined value of those contracts per year for the outsourced O&M contract in 2020 and 2021, resulting in 2.5 million AED/year as contingency. We asked AADC if any costs related with the procurement of the outsourced O&M contract could be provided to the DoE prior to the publication of the RW RC1 Final Proposals, so that more robust figures can be included in the MAR. The DoE indicated that it was

not yet clear about AADC requested contingency and its justification. The outsourced O&M projections were included in the draft financial model, but had a lower percentage for contingency.

(d) ADDC have competitively tendered the outsourced O&M contracts for 2 years in 2019 and 2020. The contracts include both the assets transferred from ADSSC and the municipalities, split geographically between Abu Dhabi Island, Eastern region, and Western Region. The value of these contracts have been provided to the DoE, together with the indication that ADDC did not incur any outsourced O&M costs in 2018. ADDC's outsourced O&M projections are considered in the financial model.

4.2.8 On O&M shared costs between the recycled water business and the distribution companies other businesses, the DoE agreed in the draft proposal paper that the portion of the shared costs allocated to the recycled water business must be consistent with the Separate Business Accounts allocation methodology. However, since the shared costs is considered in the water and electricity RC1 MAR, in the draft proposal paper the DoE proposed not to separate the shared costs allocated to the recycled water business from the water and electricity RC1 MAR. The DoE suggested that this was a more pragmatic and simple approach for the purposes of the price control calculations, and in terms of cost recovery leaves the distribution company neutral in terms or revenue allowances across all its separate business.

Response and assessment

4.2.9 The draft proposal paper included the following items in the Opex projections:

(a) FTEs

(b) Outsourced O&M Contracts

(c) Consultant costs associated with asset condition assessment

4.2.10 In their response to the draft proposal paper:

(a) On the shared cost, AADC's position is that the matter is not merely about allocation of cost but rather compensating /appreciating the approach AADC has adopted to optimize the same common functions to support the new business. ADDC on the other hand accept the DoE's proposal not to separate the shared costs and will consider the separation in RC 2. However, ADDC recommend reaching an agreement on the allocation methodology.

(b) On the outsourced O&M, AADC requested a provisional allowance to be provided to cover risks associated with poor condition of pumping stations and network handed over. AADC requested the DoE to demonstrate flexibility and provide OPEX adjustment for unforeseen costs given that the business is still being developed.

(c) On energy consumption at the pump stations, both AADC and ADDC requested that the energy consumption be considered in the OPEX projections.

4.2.11 The DoE's assessment of the companies' responses to the Draft Proposal Paper is a as follows:

(a) On the shared costs, DoE reiterated that the purpose of the price control is to incentivise efficiency, but the additional compensation proposed by AADC would in fact lead to inefficiency.

(b) On AADC's provisional allowance/contingency to be provided in addition to the outsourced O&M contract value (provisional contingency for outsourced O&M), the DoE's position is to be flexible on this as the company does not have a fully developed business plan yet despite, their efforts since adopting the recycled water network in 2018. However, the DoE requested justification to quantity this provisional allowance. In this respect, AADC submitted the emergency work required with the transferred network from the municipality, and the cost associated with the emergency repairs amounting to about 650,000 AED in 2019. This contrasts with AADC's previous request for a contingency amount of 2.5 million AED/year. Based on the data provided, these final proposal

include a provisional amount of up to AED 1 million per year in addition to the value of the O&M contract. This provisional amount is not part of the MAR calculated in the financial model included in this price control, but will be provided as part of the opex annual adjustments. The amount of provisional contingency for outsourced O&M to be included in the opex annual adjustment will be the reasonable, actual efficient costs presented and justified by AADC in this respect. The DoE will at its discretion accept or reject the annual adjustment, and the onus is on AADC to make a robust and justifiable case for any provisional allowance.

(c) On the energy consumption in Pumping Stations, the DoE agrees in principle that this allowance should be provided in the recycled water opex allowance to avoid any potential hidden subsidy. However, the DoE requested the distribution companies to treat electricity billing to recycled water as an customer revenue item in the water/electricity PCRs (as opposed to internal consumption to avoid any double counting.

(d) For ADDC, there is a part of the energy consumption costs that are not subject to opex adjustments (those of the existing network) and parts which are subject to opex adjustments. The reason for this is that the power consumption and project start date for the new networks are only estimates at this time. Therefore, the cost of energy consumption for the new network under construction will be provisional and subject to the opex annual adjustment process (against the justifiable, reasonable and efficient actual costs). This opex adjustment related to energy consumption is only applicable to ADDC and does not apply to AADC.

(e) The Energy consumption in pumping stations included in the opex allowance in the RW RC 1 is provided in the Table below:

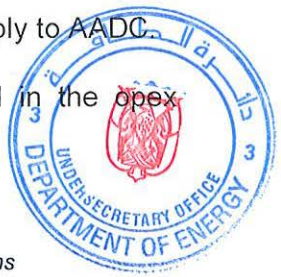

Table 3: Allowance for Energy Consumption for Recycled Water Pump Stations

AED million in 2018 prices	2019	2020	2021

AADC – Pumping Stations Energy Consumption	10	10	10	
ADDC - Existing Pumping Stations Energy Consumption	8.5	8.5	8.5	
ADDC – New Pump Stations Energy Consumption	0	0.88	8.6	Subject to annual opex adjustment

(f) The FTE projections for both companies have been refined since the draft proposal based on updated information from the companies and are provided in the Table below:

Table 4: FTE projections during RC1 for recycled water businesses

		2018	2019	2020	2021
ADDC	# of FTEs	0	9	19	29
AADC	# of FTEs	0	5 FTEs for last 6 months	5	5

4.2.12 The DoE assessed the total opex forecasted by the companies against the benchmark for opex per cubic meter of water distributed annually used in the RC1 price control for the water business. The benchmarks show that the costs should be around 1.2 AED/m3 of water distributed annually. The unit cost reduces with more water distributed, as economies of scale would suggest, but as the quantity of recycled water is small compared to the amount of water distributed annually in Abu Dhabi, a value of 1.2 AED/m^3 seems reasonable. It must be qualified that this benchmark is for water distribution networks and not recycled water networks. Potable water networks have more customer connections and may be operationally more cumbersome than the recycled water distribution network. However, in the absence of more robust figures at this stage, this is the closest benchmark available. It is the intent of DoE to hire a consultant during RC2 to develop more relevant benchmarks to help the DoE assess the reasonableness of the opex projections provided by the companies.

4.2.13 Both companies opex projections are below the opex benchmark and are therefore deemed reasonable based on the best information available to date.

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4.2.14 The DoE will adopt the opex projections communicated by the companies as discussed in the previous section to include the manpower, outsourced O&M costs, and consultant costs to be incurred as a result of the network condition assessment, and energy consumption in the pumping stations.

4.2.15 The DoE will adopt the following opex projections in the RW RC1:

Table 5: Opex projections for RW RC1 – Final Proposal

AEDm, 2018 prices	2018	2019	2020	2021
AADC	-	15.05	19.5	19.5
ADDC	-	45.73	50.59	64.38

Table 6: AADC OPEX Projections subject to adjustments

AEDm, 2018 prices	2018	2019	2020	2021	Justification to be provided
Total Opex projections	-	15.05	19.5	19.5	
Adjustable portion in MAR	N/A	N/A	N/A	N/A	
Provisional Allowance	-	-	1	1	AADC Payments to O&M Contractor above outsourced O&M Contract Value for repairs to RW PS and network.

Table 7: ADDC OPEX Projections subject to adjustments

AEDm, prices	2018	2018	2019	2020	2021	Justification to be provided
Total Opex projections		-	45.73	50.59	64.38	
Adjustable portion in MAR		0	0	0.88	8.6	External revenue item in PCR based on energy consumption in new PS
Provisional Allowance		N/A	N/A	N/A	N/A	

4.3 Opening regulatory asset value (RAV)

4.3.1 As this is the first price control for recycled water businesses in Abu Dhabi, the regulatory asset value (RAV) for AADC and ADDC will have two key elements:

(a) The initial (or opening) RAV – this should be the cost that AADC and ADDC incurred to acquire the assets transferred from ADSSC and the municipalities, at the time of transfer (in the remaining of this section we will refer to these as 'transferred assets'); and

(b) The value of any new investment made by AADC and ADDC from the beginning of their regulated activity, 1 January 2018 (discussed in the next section)

4.3.2 The remainder of this section deals only with the initial RAV (the next section will set out the proposals for the new capital investment).

4.3.3 The first consultation paper proposed setting the initial RAV equal to the net book value of the transferred assets as of 1 January 2018.

4.3.4 However, in the second consultation paper, DoE proposed to set the initial RAV to zero, given that no price has been paid for existing assets transferred from other entities based on the transfer agreements.

4.3.5 Accordingly, the DoE draft proposal was to set the initial RAV equal to zero.

Responses and assessment

4.3.6 The DoF responded to the draft proposal paper, referring to their response to the 2nd consultation paper, stating they have no objection to the approach adopted by DoE in the price control.

4.3.7 ADDC responded to the draft proposal paper recommending that the DoE leads and presents the business and financial implications for the two options related to the initial RAV and establish a common understanding and alignment among stakeholders.

4.3.8 AADC did not accept that the initial RAV be equal to zero. AADC stated in their response that they believe the recycled water assets are part of the investment made by the government through ADSSC (and now Abu Dhabi Development Holding Company, ADHC), and the returns will continue to serve the same shareholder.

4.3.9 In their response to the draft proposal paper, ADSSC stated that they have an outstanding loan with the Government of Abu Dhabi for which they will write to DoF to inform them of transfer of assets and write down the loan from ADSSC's books.

4.3.10 ADPower in their response to the draft proposal stated that it disagrees with the initial RAV being equal to zero as well.

4.3.11 The DoE met with DoF on 7 November 2019 to understand how the government expects a return in a way that would prevent distortions in the cost of the sector.

4.3.12 On DoF's advice, the DoE wrote to ADHC on 13 November 2019 on the initial RAV. DoE stated that the value of the transferred assets under normal conditions – i.e. where they need to be repayed to the providers of the funds used in the acquisition of the assets (shareholders and/or financial institutions) – would be added to the RAV of the distribution companies. Based on the evidence the sector provided to the DoE to date, however, it appeared clear that AADC and ADDC do not have any costs with the acquisition of existing recycled water assets. In other words, despite our repeated requests, the DoE received no evidence to suggest that AADC and ADDC would need to repay any loans in relation to the acquisition of the assets transferred.

4.3.13 The price control is the tool used by the DOE to discharge its duty to ensure that the sector is economic and efficient, The price control does this by reviewing the distribution companies costs and allowing the recovery only of the costs efficiently incurred by the sector – this is the MAR, which under the approach we use corresponds to three efficient types of costs: opex,

depreciation and return (the latter two are costs related with the acquisition of capital assets, or capex).

4.3.14 As there is no evidence suggesting that AADC and ADDC have any costs related with capex, the value of depreciation and return on capital for the transferred assets should be zero. If depreciation and return on capital related with the transferred assets is not set to zero, AADC and ADDC MAR would allow them to recover costs which do not exist. This would result in increased tariffs and/or any subsidy for recycled water in Abu Dhabi (as compared to DoE's zero value proposal).The RAV should reflect the current economic situation.

4.3.15 To meet our efficiency and economic duty, the DOE would need to set the initial RAV to zero in the RW RC1 – as this would avoid any depreciation and return on capital for the transferred assets. However, we recognise that the final decision on the initial RAV depends on whether the Government, as the ultimate owner of the assets, requires a return of and on its past investment in the recycled water business assets, and if so how does it want it.

4.3.16 ADHC is the shareholder of ADSSC and, through ADPower, of AADC and ADDC, and thus represents the Government interests in these investments. The DoE asked specifically ADHC about these issues, about its dividend policies for the recycled water businesses, and if it plans to transfer to AADC and ADDC the proportion of ADSSC's government loan used to fund the initial recycled water assets (which could be one option to deal with this matter).

4.3.17 In their response on 9 December 2019, ADHC confirmed that it is reasonable to transfer the assets at their book value with the respective loan amount. ADHC also requested the DoE to consider the related costs with depreciation and return on capital in the MAR calculations. ADHC further indicated that its dividend policies are not company/sector specific.

4.3.18 The DoE notes that no written documents and information have so far been received about::

(a) The terms of ADSSC loan for the recycled water business;

(b) The terms under which these loans may/will be transferred to the two distribution companies recycled water businesses; and

(c) The dividends policies in the recycled water business sector.

4.3.19

4.3.20 On the basis of the representations provided by ADPC and ADHC, , the DoE accepts to set out in these final proposals the initial RAV for each of the distribution companies as the value of the net book value of the transferred assets. The DoE reserves the right to make such adjustments to this price control as are necessary to rebase the RAV, following any review of such information subsequently provided or to rebase the RAV in any subsequent price control period as appropriate.

Final Proposal

4.3.21 The DoE final proposal is to set the initial RAV equal to the net book value of the assets transferred from ADSSC to the distribution companies as discussed above.

Table 8: RC1 Opening RAV – Recycled Water

AEDm, 2018 prices	2018
AADC	447
ADDC	969
Total	**1,416**

4.4 Capital expenditure

4.4.1 The first and second consultation papers discussed the ex-ante and ex-post approaches to the assessment and treatment of capex during the RW RC1. The DoE suggested using the same approach applied with the electricity, water and wastewater RC1:

(a) using ex-ante capex reviews to assess and establish efficient capex allowances for the price control period, and regular ex-post capex reviews to approve any change in allowed capex in the price controls

(limited to projects where actual and projected capex differ by more than 10%);

(b) conducting the ex-ante capex review through the Technical Assessor (TA) during 2019, to set capex allowances for recycled water for the period 2020-2021; and

(c) Conducting in 2020 the ex-post capex efficiency review for the recycled water businesses capex spent during 2018 and 2019.

Responses and assessment

4.4.2 DoE did not receive the ex-ante assessment results for any of the capex projects until December 2019, and the information received then covered only some of ADDC's projects. During the draft proposal paper development, the companies communicated that ex-ante assessment would not be possible, despite in previous discussions the distribution companies supporting the ex-ante capex review approach and requesting to manage the process.

4.4.3 At the time of the draft proposal development, the DoE stated it would adopt the approach for annual ex-post capex reviews, and the application of the resulting efficient factor to adjust the MAR annually.

4.4.4 The Table below presents the latest forecasts provided by the distribution companies.

Table 9: Capex allowances for the RW RC1 period

AEDm, nominal prices	*2018*	*2019*	*2020*	*2021*
AADC	-	-	*1.8*	*9.2*
ADDC	-	*65.9*	*372.9*	*555.9*

4.4.5 Some of the projects of ADDC have been assessed using ex ante review and communicated to the DoE in December 2019. However some of their projects will still be assessed ex-post.

4.4.6 All of AADC projects will be assessed ex-post.

4.4.7 The Table below present the projects of ADDC to be assessed ex-post and those that passed the technical assessor ex-ante review.

Table 10: ADDC Capex Allowance Assessment

	Budget Title	Assessment
1	Consultancy Service for Design, Review, Tendering, HOS, and site supervision for the construction of recycled water mains on Abu Dhabi-Al Ain Road.	Ex-post
2	Consultancy Services for Recycled Water Transmission system from IPS 3A to various farms in Bahya, Shahama, Rahba, Samha, Ajban and other adjacent areas.	Ex-post
3	Consultancy Service for Construction Supervision and Head office Support for Recycled Water Main Line from Yas Island to Saadiyat Island.	Ex-post
4	Construction of Recycled Water Main Line from Yas Island to Saadiyat Island (Single Source)	Ex-post
5	Construction of Recycled Water Mains along Abu Dhabi – Al Ain Road	Ex-ante
8	Recycled Water Transmission System from IPS 3A to Various Farms in Bahya, Shahama, Rahaba, Samha, Ajban and Other Adjacent Areas	Ex-ante
10	Supply and installation of TSE Water Meters of different sizes for Customer Connections (2019)	Ex-ante
11	Consultancy Service for the Replacement of Deteriorated TSE Network in Central,Eastern & Al Dhafarha region of ADDC as per the TSE Network Condition Assessment Project Report - D-106829.	Ex-ante
12	Construction / Replacement for the Replacement of Deteriorated TSE Network in Central,Eastern & Al Dhafarha region of ADDC as per the TSE Network Condition Assessment Project Report - D-106829.	Ex-ante

Final Proposal

4.4.8 The DoE will adopt the approach for annual ex-post capex reviews for all AADC projects and for the running projects of ADDC in 2018 and 2019, and the application of the resulting efficient factor to adjust the MAR annually. However for the ADDC projects starting in 2020 and 2021, as mentioned in the above table, the capex allowance has been assessed based on an ex-ante basis.

4.5 Regulatory depreciation

4.5.1 In the first and second consultation and in the draft proposal papers, the DoE proposed using the straight-line method for calculating depreciation in the RW RC1 (consistent with that for the electricity, water, and wastewater companies).

4.5.2 The first consultation paper also proposed to use an average regulatory asset life assumption of 40 years to any new recycled water capex spent during the RC1 period.

Responses and assessment

4.5.3 In their response to the draft proposal paper, ADDC and AADC agreed to the proposed 40 years average regulatory asset life for recycled water related capex incurred from 2018 onwards.

4.5.4 However, AADC also added that a 30 year asset life assumption should be considered for depreciating the initial RAV as AADC cannot take the responsibility of 40 years asset life installed by others. ADDC on the hand accepts the position to use the remaining average asset life used in the transferring company's price control. Moreover ADDC requested to revisit the 40 year assumption in the RC2 development.

4.5.5 The DoE met with the companies on 17 November 2019 and stated that should the initial RAV not be zero, the remaining asset life in the transferring companies price control will be used.

4.5.6 **Table 6** shows the depreciation which would result from the assumptions adopted in this final paper in relation to initial RAV, capex, depreciation profile and asset lives assumption.

Table 11: Depreciation for the RW RC1 - Final Proposal

Total Depreciation	*RC1*			
AEDm, 2018 prices	*2018*	*2019*	*2020*	*2021*
AADC Recycled Water	9.85	9.85	9.87	10.01
ADDC Recycled Water	26.57	22.18	27.37	38.12

4.5.7 Capex incurred in a year is assumed to occur evenly throughout the year or, in other words, at the middle of the year. Therefore, for the year in which a capex is incurred, only half-year depreciation is taken. For later years, the depreciation for such capex is charged for the full year.

Final Proposal

4.5.8 The DoE maintains applying straight-line depreciation and a regulatory asset life assumption of 40 years for new recycled water assets. For the existing assets transferred from ADSSC, the remaining life from the ADSSC's price control is used.

4.6 Cost of capital

4.6.1 In the first and second consultation, and in the draft proposal paper, the DoE proposed the same WACC as that used for the water and wastewater businesses in RC1, which was set after extensive studies and consultation. The wastewater business includes wastewater collection, treatment, and disposal of recycled water. Moreover, parts of the recycled water network that were with the wastewater licensee have now been novated to the distribution companies.

Responses and assessment

4.6.2 In their response to the first and second consultation, the companies stated that their shareholder ADPower may have a view on the WACC and would like to consult them.

4.6.3 ADPower have responded to the draft proposal stating they have no objection to a WACC of 4.6 for the recycled water first regulatory control, however they highlight that the distribution of recycled water is a new activity with a large upcoming investment and no historical data.

Final Proposal

4.6.4 The DoE final proposal sets out a WACC of 4.6% for the RW RC1, consistent with the WACC applied for the electricity, water and wastewater RC1.

5. Price Control Calculation

5.1 Introduction

5.1.1 The calculations of price control revenue involve using allowances for operating costs, regulatory depreciation and returns, together with present value calculations, to derive the companies' own or core price control revenues (i.e. revenue requirement excluding pass-through costs). We then use these core price control revenues to determine base values for the new price controls, which will be included in new price control conditions in the licences for the distribution companies. Once the new price control arrangements are put in place, this level of base revenue will be subject to cost pass-through terms, allowing the determination of total price control revenue.

5.1.2 This **Section 5** describes the overall framework for price control calculations used in this Final Proposal Paper. Earlier sections discuss and set out various inputs required for these calculations. This section describes the price control calculations in detail and sets out the results and implications. We are issuing the financial model to the companies (RW RC1 Financial Model to update the RAVs and calibrate the notified values) alongside the Final Proposal Paper. **The Annex** sets out the main calculations from the RW RC1 Financial Model.

5.2 Framework for price control calculations

5.2.1 Setting the price controls means determining the values of the fixed term 'a' (and normally the coefficient of revenue driver 'b', which as set out above we are not including now) in the MAR formula, and the value of the X-factor. In this Final Proposal Paper, the DoE has used the following framework for its price control calculations which, with the few differences in the approach as highlighted in the previous sections, is consistent with the one used for the electricity, water, and wastewater RC1.

NPV approach

5.2.2 The revenue requirement for each year of the control period (sufficient to finance a reasonably efficient business) is calculated using the "building block approach":

Required revenue = Opex + Depreciation + Return on capital

where:

(a) Operating expenditure (opex) refers to operating costs excluding depreciation.

(b) Depreciation is calculated using a straight-line method and an assumed average asset life.

(c) Return on capital in any year is calculated by multiplying the mid-year average of opening and closing RAVs in that year by the cost of capital. For each year, the closing RAV is determined by adding the efficient capex incurred in that year to, and subtracting the depreciation from, the opening RAV.

5.2.3 The projected MAR for each year of the control period is calculated using the revenue driver projections, appropriate weightings for the fixed and variable terms, and an appropriate 'X' factor.

5.2.4 The values of 'a' is then calculated by setting the NPV of the projected MARs equal to the NPV of required revenues over the control period using the estimated cost of capital as the discount rate:

NPV of projected annual MARs = NPV of required revenues

All calculations are carried out excluding the effect of inflation for future years. For the purpose of these calculations, pass-through costs, licence fee and 'K' terms are excluded.

Financial models

5.2.5 We have used the Microsoft Excel financial model developed to carry out the RC1 price control calculations (referred to as the "RC1 Financial Model") for the electricity, water, and wastewater companies as a base.

5.2.6 At this review, all calculations are carried out in real, 2018 prices. The discount rate used in the present value or NPV calculation is the real cost of capital of 4.6%. The NPV of costs is calculated on a mid-year basis.

5.3 Price control calculations

5.3.1 Annex A to this document presents the detailed price control calculation for the distribution companies. The calculation is explained below with reference to the Excel model.

5.3.2 As mentioned in Chapter 3, the opex costs incurred in 2018 and 2019 are proposed to be passed-through subject to cost justification.

Notified values and Projected MARs

5.3.3 Based on these price control calculations, the DoE's draft proposal for the notified value, 'a', to be applied from 2020 onwards, is summarised below. The notified values given in this table (to the accuracy to decimal places expressed therein) will be those used to calculate MARs when the price controls are implemented.

Table 12: Results

Results		2020
X Factor		0.00
AADC Fixed revenue term (a)	AED million	48.79
ADDC Fixed revenue term (a)	AED million	151.62

5.3.4 These notified values are for 2020 expressed in 2018 prices, which will be adjusted for calculation of actual MAR inflation via price control returns (PCRs). For subsequent years, these notified values will be adjusted by CPI-X indexation.

5.4 Analysis of final proposal

Constituents of projected MARs

5.4.1 The figures below presents the breakdown of total revenue (excluding pass-through costs) into projected opex, depreciation and profits in NPV terms for each company.

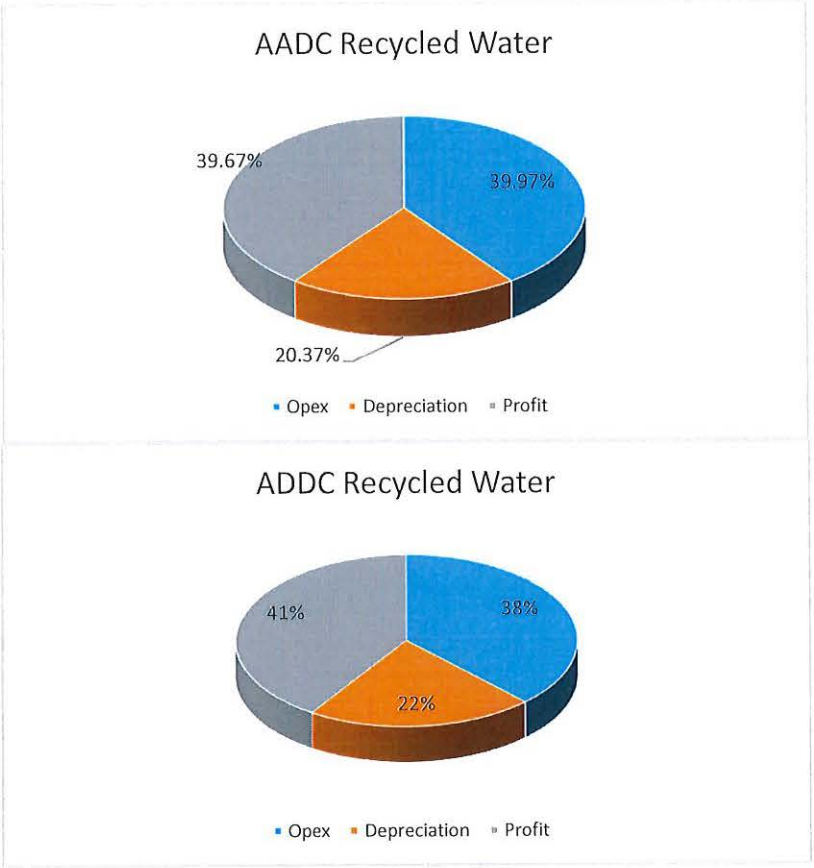

Figure 3: MAR Constituents

6. Annexes

AADC Price Control Calculations – RC1 Final Proposal

			RC1			
Inputs			**2018**	**2019**	**2020**	**2021**
Operating expenditure allowance	AEDm		-	15.05	19.50	19.50
Opening RAV	AEDm		446.64	436.80	426.95	418.88
Closing RAV	AEDm		436.80	426.95	418.88	418.07
Mid-Year RAV	AEDm		441.72	431.87	422.91	418.48
Total depreciation for RC1	AEDm		9.85	9.85	9.87	10.01
Cost of capital (real)		4.60%				
X Factor		0.00				
RC1 Required Revenue Calculations			**2018**	**2019**	**2020**	**2021**
Operating expenditure allowance	AEDm		-	15.05	19.50	19.50
Total depreciation for RC1	AEDm		9.85	9.85	9.87	10.01
Return on mid-year RAV	AEDm		20.32	19.87	19.45	19.25
Annual revenue requirement	AEDm		30.17	44.77	48.82	48.76
Discounted annual revenue requirement	AEDm		29.50	41.85	43.63	41.66
PV of revenue requirement (after foregone financing costs)	AEDm					
Results			**2018**	**2019**	**2020**	**2021**
X Factor					0.00	0.00
Fixed revenue term (a)	AED million		30.17	44.77	48.79	48.79

ADDC Price Control Calculations – RC1 Final Proposal

			RC1			
Inputs			**2018**	**2019**	**2020**	**2021**
Operating expenditure allowance	AEDm		-	45.73	50.59	64.38
Opening RAV	AEDm		969.27	942.70	984.50	1,308.54
Closing RAV	AEDm		942.70	984.50	1,308.54	1,778.93
Mid-Year RAV	AEDm		955.99	963.60	1,146.52	1,543.74
Total depreciation for RC1	AEDm		26.57	22.18	27.37	38.12
Cost of capital (real)		4.60%				
X Factor		0.00				
RC1 Required Revenue Calculations			**2018**	**2019**	**2020**	**2021**
Operating expenditure allowance	AEDm		-	45.73	50.59	64.38
Total depreciation for RC1	AEDm		26.57	22.18	27.37	38.12
Return on mid-year RAV	AEDm		43.98	44.33	52.74	71.01
Annual revenue requirement	AEDm		70.54	112.24	130.70	173.51
Discounted annual revenue requirement PV of revenue requirement (after foregone financing costs)	AEDm		68.98	104.91	116.80	148.24
	AEDm					
Results			**2018**	**2019**	**2020**	**2021**
X Factor					**0.00**	**0.00**
Fixed revenue term (a)	**AED million**		**70.54**	**112.24**	**151.62**	**151.62**