



**RECYCLED WATER FIRST REGULATORY CONTROL
(RW RC1)
DRAFT 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 first consultation paper was published in June 2018, and the second consultation paper was issued in December 2018. 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 DoE received detailed responses to the second consultation paper from the licensees, DoF, EAD, and DPM. This draft proposal paper summarises the responses and the progress made through this engagement, the DoE's assessment and current thinking, and sets out the DoE's rationale and proposals on the key aspects of the recycled water first regulatory control (RW RC1).

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

Written responses to the issues raised in this paper should be sent by **10 October 2019** to:

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*Following consideration of the responses to the draft proposal, the DoE will aim to issue the Final Proposal in **November 2019**.*

MOHAMMED BIN JARSH AL FALASI
Undersecretary-Department of Energy



Executive summary

Introduction

1. This document presents the draft proposal for the RW RC1. In December 2018 we published the RW RC1 second consultation paper, and received the stakeholder's responses in February and March 2019. In this draft proposal, we assess the responses to the first and second consultation papers and the results of our engagement with the sector since February 2019, and set out our revised proposals for the RW RC1. This document also includes the draft financial model for the RW RC1, and sets out a first view on the MAR for the RC1 period.
2. We intend to publish final proposals in November 2019.

Form of Controls

1. In view of the supportive response to the first and second consultation:
 - (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 will be applied retrospectively for 2018 and 2019.
2. In relation to revenue drivers, while 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. In relation to performance incentives, it is proposed to proceed with no specific performance incentives for the 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 draft proposal to include the manpower, outsourced O&M costs, and consultant costs to be incurred as a result of the network condition assessment.
2. The opex projects can be further refined prior to issuance of the Final Proposal in November if the companies provide more updated figures with justification such as award values for the outsourced O&M contracts for AADC. The FTE manpower projections will also be reassessed based on actual on-boarding activities.
3. On the issue of initial RAV, since assets were transferred at zero costs, the DoE proposes setting the initial RAV equal to zero. As the information provided by the distribution companies confirms that assets are being transferred at no cost, we refer to the discussion in the second consultation paper which explains and justifies our proposed approach.
4. On future capex allowances, we have considered the capex planned for the period 2018-2021 without including any efficiency assessment factor. The MAR will then be adjusted once the ex-post capex efficiency review is concluded on an annual basis.
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.



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 costs incurred in 2018 and 2019 are proposed to be passed-through subject to cost justification.
2. The DoE's initial 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	17.59
ADDC Fixed revenue term (a)	AED million	103.14



1. Glossary

AADC	Al Ain Distribution Company
ADDC	Abu Dhabi Distribution 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)
IM	Interface Metering
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. 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 This document presents the DoE's draft 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 this draft proposal paper, we assess the responses to the second consultation and the results of our engagement with the sector since September 2018, and set out our revised 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.

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 tariff.

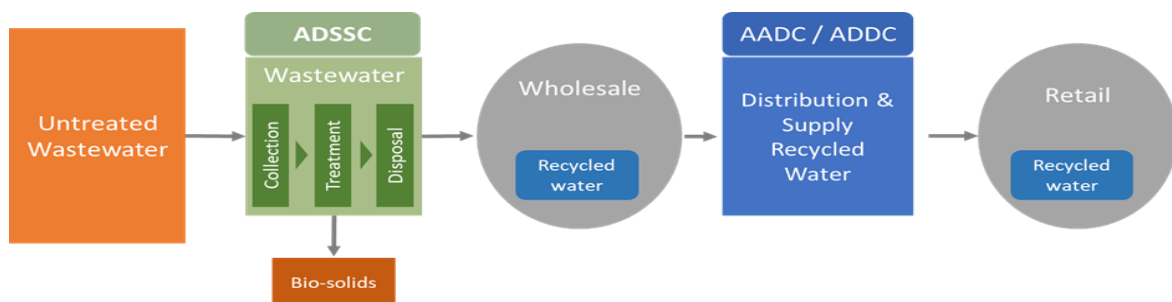


Figure 1: Structure of the recycled water sector

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 second consultation paper, the status of the asset register was as follows:

- (a) ADDC agreed with Abu Dhabi Municipality on the quantification of assets handed over to them and their demarcation.
- (b) ADDC GIS records reflect the assets taken over from both ADSSC and the Municipality. Almost 90% of the demarcation is complete and the remaining 10% is expected to be completed in December 2018.
- (c) ADDC was in the process of determining the future capex requirements, which is expected to be ready by June 2019.

2.2.5 Following the meeting on 18 June 2019 and further communication in July, we understand that the status of the asset survey and future capex requirements will be finalized in October 2019, a delay of 2 to 3 months due to lengthy communication and access protocols with other key stakeholders.

2.2.6 We will maintain our close engagement with both AADC and ADDC to bridge the current gap in the information on the recycled water business assets.

2.2.7 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. As a results of the Outlook an overall water management policy is expected to be completed by 2020 since EAD are conducting their Integrated Water Resources Management Study in 2019.

2.2.8 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 appropriate share of 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 Q4 2019.

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. In such cases, economic regulation is essential to ensure that the companies are allowed to recover only efficient costs, and to protect customers' interests particularly in terms of prices and quality of goods or services provided.
- 2.4.3 As discussed in Section 3 below, the current thinking is to establish 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 their customers and/or any subsidy. This would be consistent with the present form of price controls for network companies in the water and electricity sector.

2.4.4 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 at any date prior to 31 December 2019, to take account of new information subsequent to the issue of the Licence. This licence condition will be the basis for affecting the results of the present price controls review. In future price controls reviews, pursuant to Article 101 of Law No (2) of 1998, the licence modifications to be proposed at the end of the review should be accepted by the network companies before of such modifications take effect.

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 Progress on this review

2.5.1 This review spans over a period of about 2 years to provide sufficient opportunity for stakeholder discussion and consultations on the key issues. The timetable involves four (4) consultation and proposal documents to be published by the DoE during 2018-2019, in addition to workshops, presentations and meetings at various stages. It allows the companies around 30 days to respond to each consultation and proposal paper.

2.5.2 The First Consultation paper in June 2018 set out the timetable for the review. Table 2 of this Draft Proposal sets out the timetable for the remainder of the review along with progress to date.

2.5.3 DoE has generally received a supportive response from the companies to its first and second consultation. 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 the meetings in February, March, June, and July 2019.

- 2.5.4 The AIS submitted on the 31 October 2018 contained initial opex and capex projections from the companies that are used in developing the price control calculations in Section 4. The information was further refined in subsequent communication and emails. However, close engagement with the companies may still be required to further understand their business plans and update the price control calculations in the final proposal. 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.
- 2.5.5 The 2018 SBAs submitted by the distribution companies earlier this year did not contain any costs on the recycled water business.
- 2.5.6 Ex-ante Capex reviews were not carried out by the Distribution companies. The DoE have been in close engagement with the distribution companies to understand the capex allowances. It is foreseen that ex-post reviews will be more likely for the first regulatory control with the intent on moving towards ex-ante assessments in the future.



Table 2: Timetable for Price Control Review

Approximate date	Task
25 June 2018	DoE published this 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 to respond to Second Consultation
12 Feb 2019	Meeting/workshop with companies
28 March 2019	Meeting/workshop with companies
April 2019	Companies to submit 2018 audited SBAs – nothing on recycled water business
8 July 2019	Meeting with AADC. ADDC declined to attend.
Timetable for the remainder of the review	
8 September 2019	DoE Publishes Draft Proposal
September 2019	Companies to respond to Draft Proposals
September/ October	Meeting/Workshop with companies
October 2019	Companies to submit results of asset survey
21 November 2019	DoE publishes Final Proposals
December 2019	DoE modifies licence to give effect to price controls

2.5.7 The information required from AADC and ADDC to be able to publish the final proposal in November 2019 includes:

- (a) Timely response to this Draft Proposals;
- (b) Opex forecasts justification;
- (c) Asset register, condition assessment, and valuation;
- (d) Refinement of capex projections.

2.6 Structure of this document

2.6.1 The remainder of this document is structured as follows:

- Section 3 discusses the possible 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 Second Consultation, 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 paper raised a number of issues in relation to the structure of the price control, which need to be addressed in setting the regulatory control for the recycled water distribution and supply companies. This section further discusses these issues in the light of the companies' responses.

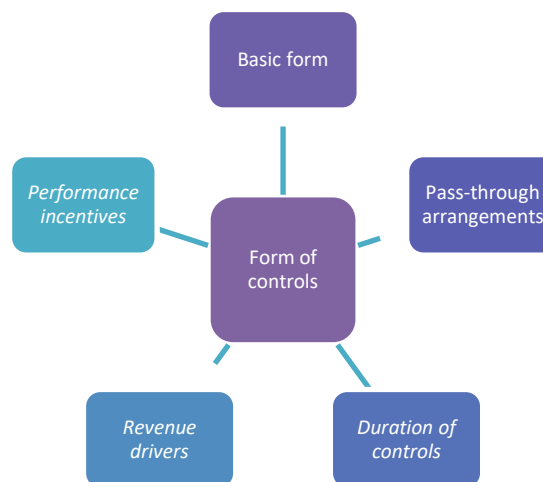


Figure 2: Assessment of Form of New Controls

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.

3.2.2 In their response to the first consultation paper, both companies agreed with the proposal for using the CPI-X regulation approach in the RW RC1.

Responses and assessment

3.2.3 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.

Draft Proposal

3.2.4 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.

Draft 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), with regular capex reviews. The RW RC1 controls will apply retrospectively from 1 January 2018 to 31 December 2019, and run to 31 December 2021. 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, stipulate that the DoE will be able to make changes to Schedule 2 of the licence up to 31 December 2019, to give effect to the outputs resulting from these price controls review.

Responses and assessment

3.4.3 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.



- 3.4.4 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 retrospectively.
- 3.4.5 ADDC mentioned in their response to the second consultation that the existing network condition assessment and capital requirements will be delayed by one month from the original communication to July 31, 2019. Following further engagement with the companies, we understand that this condition assessment will most likely be further delayed and is now expected in October 2019. The DoE will engage closely with the sector to ensure the network condition assessment and associated capital requirement is reflected in the Final Proposals due in November 2019.

Draft Proposal

- 3.4.6 Given the above, the draft proposal will adopt the price control period from 1 Jan 2018 to 31 December 2021, with the price control applied retrospectively for 2018 and 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 RC1 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 In addition, as the RW-RC1 will apply retrospectively to 2018-2019, the first consultation paper proposed to calculate the MAR for these years in fixed terms only.

3.5.4 While 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 assessment showed that the risk of reduction in recycled water generation by ADSSC is minimal as their wastewater forecasts show a steady increase and therefore was 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.

Responses and assessment

3.5.6 Both AADC and ADDC preferred that the first price controls 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, the DoE can accept expressing the MAR in fixed terms only at this time. 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.

Draft Proposal

3.5.9 In view of the above, it is proposed 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,
- (b) and 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.

Responses and assessment

3.6.5 Both ADDC and AADC stated in their responses to the second consultation 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.

Draft Proposals

3.6.7 In view of the responses to the second consultation 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:

$$\text{MAR} = \text{Pass through costs} + a + (b \times \text{Revenue driver}) + Q - K$$

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).
- (c) 'b' is the coefficient of the revenue driver, expressed in Dirham per unit of the respective revenue driver. For this draft proposal, the 'b' term is set to zero for this RC1 period as there are no variable drivers.
- (d) 'a' and 'b' are set by the DoE for year 2020 (since price control for 2018 and 2019 will be retrospectively assessed) and are 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. The 'b' term will be set to zero for this RC1 period as discussed in this draft proposal.
- (e) Revenue drivers are measures of companies' outputs or demands they meet in a year. As discussed above, the MAR for this RC1 period will be calculated in fixed terms only for this draft proposal and as such revenue drivers will not be a part of the MAR calculation.
- (f) 'Q' is the revenue adjustment for performance during a year under the Performance Incentive Scheme (if any). As discussed above, our draft proposal is for the RW RC1 not to include specific performance incentives, which means that Q would be zero for the RW RC1 period.
- (g) 'K' is the correction factor adjusting any over- or under-recovery of revenue in the preceding year.



3.7.2 The calculations of price control revenue involves using allowances for the three building blocks (opex, regulatory depreciation and return on capital) to derive the licensees' own or core price control revenues (i.e. revenue requirement excluding pass-through costs). These core price control revenues are used to determine the notified values of 'a' and 'b' in the MAR formula above, which are then included in the new price control conditions in the licence for the network companies. This level of base revenue is subject to cost pass-through terms and may also be subject to incentive arrangements, allowing the determination of total price control revenue.

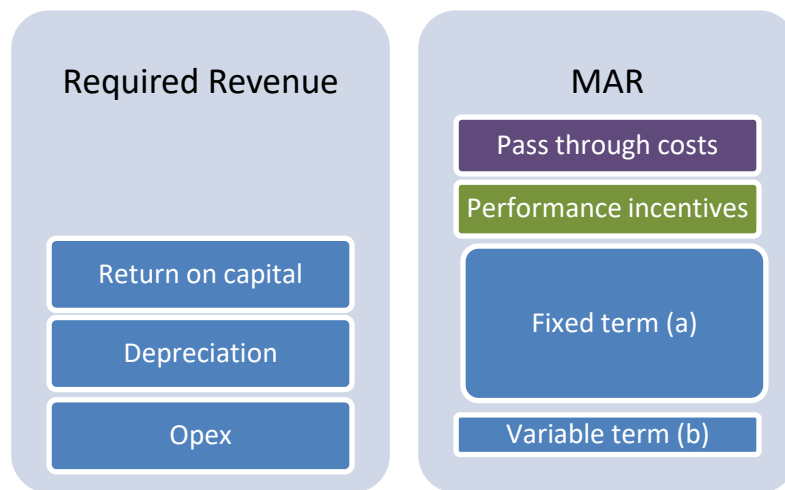


Figure 3: Building Blocks of Revenue Requirements

3.7.3 To date, we have used a net present value (NPV) approach to sculpting the licensees' own or core price control revenue requirements over the period of the price control. NPVs are calculated using the estimate of the cost of capital as the discount rate. This involves the following steps:

- (a) Required revenues for the forward looking price control period are calculated as NPVs, which are then matched against the NPV of the projected revenues; and
- (b) Projected revenue is derived according to the form of the control in terms of fixed terms and revenue drivers and the forecasts of these revenue drivers. Projected revenue is controlled and sculptured by selecting base prices (i.e. notified values of 'a' and 'b' in the MAR formulae) and X values.



- (c) For simplification, as mentioned previously, the MAR calculation in section 4 of this report does not include variable revenue drivers (b value) nor does the MAR consider any performance incentives for this RC1 period.



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 (to determine RAV for each year)
- (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.

Response and assessment

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 With regards to the opex allowances for 2020 and 2021, 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).

4.2.7 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

4.2.8 Following receipt of the responses 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 FTE projections for both companies are provided in the Table below:

Table 3: FTE projections during RC1 for recycled water businesses

		2018	2019	2020	2021
ADDC	# of FTEs	0	10 (6 for 5 months, and 4 for 3 months)	20 (10 for 12 months, and 10 for 6 months)	42
AADC	# of FTEs	0	5 FTEs for last 4 months	16	23

- (c) 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.



- (d) 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 than 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. At this stage, the DoE is not yet clear about AADC requested contingency and its justification. The outsourced O&M projections are provided in the financial model however consider a lower percentage for contingency at this stage.
- (e) 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.

4.2.9 On O&M shared costs between the recycled water business and the distribution companies other businesses, the DoE agrees with the companies that the portion of the shared costs allocated to the recycled water business must be consistent with the SBA allocation methodology. However, since the shared costs is considered in the water and electricity RC1 MAR, the DoE proposes not to separate the shared costs allocated to the recycled water business from the water and electricity RC1 MAR. This is 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 of revenue allowances across all its separate business.

4.2.10 It is apparent from the close engagement with the sector, that the companies do not have a fully developed business plan yet for their recycled water business despite their efforts since adopting the business in 2018. As such, a more pragmatic approach is also required to assess the efficient opex allowances.

4.2.11 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. In 2018, around 60 million cubic meter of recycled water was distributed in Al Ain and around 109 million cubic meter of recycled water was distributed in Abu Dhabi. For both these quantities, the benchmarks show that the costs should be around 1.2 AED/m³ of water distributed annually. The ratio 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/m³ 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.

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

Draft Proposal

4.2.13 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.

4.2.14 The opex projects can be further refined prior to issuance of the Final Proposal in November if the companies provide more updated figures with justification such as award values for the outsourced O&M contracts for AADC. The FTE manpower projections will also be reassessed based on actual on-boarding activities.

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

Table 4: Opex projections for RW RC1 – Draft Proposal

AEDm, 2018 prices	2018	2019	2020	2021
AADC Recycled Water	-	5.05	16.20	18.52
ADDC Recycled Water	-	35.57	39.06	55.97
Total	-	40.62	55.26	74.50

4.3 Regulatory asset value (RAV)

4.3.1 The first consultation proposed setting the initial RAV equal to the net book value of the assets as of 1 January 2018 and update the RAVs annually for capex and depreciation for the recycled water businesses.

4.3.2 However, in the second consultation, DoE proposed to set the initial RAV to zero. The value of the existing assets, once determined, would under normal conditions be added to the RAV of the distribution companies. However, given that no price has been paid for existing assets transferred from other entities, any capital related price control allowance would potentially amount to a windfall profit for the distribution companies. As such, the DoE proposed setting the initial RAV equal to zero.

Responses and assessment

4.3.3 Both AADC and ADDC continue to propose that the initial RAV is equal to the net book value of the assets transferred from ADSSC and the Municipality.



- 4.3.4 The DoE engaged with the sector to understand the transfer price in the transfer agreements. ADDC signed both transfer agreements with ADSSC and the Abu Dhabi Municipality showing that assets were transferred at no cost.
- 4.3.5 AADC also shared the draft of the transfer agreements from the municipality, which shows that the assets are being transferred at no cost.
- 4.3.6 As mentioned in earlier paragraphs, since assets were transferred at zero costs, the DoE proposes setting the initial RAV equal to zero. As the information provided by the distribution companies confirms that assets are being transferred at no cost, we refer to the discussion in the second consultation paper which explains and justifies the proposed approach, already based on this premise.

Draft Proposal

- 4.3.7 The DoE draft proposal is to set the initial RAV equal to zero.

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 period while setting the price controls. The DoE suggested using the same approach applied with the electricity, water and wastewater RC1:
- 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%);
 - 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
 - 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 Both AADC and ADDC have provided their capex allowances estimates during the price control period.
- 4.4.3 DoE did not receive the ex-ante assessment results for any of the capex projects.
- 4.4.4 In recent engagement the distribution companies have indicated that they would like to change the approach for capex reviews in the price control, and this is currently being discussed between the DoE and the companies. The DoE notes however that capex efficiency review was discussed at length with the network companies during the RC1. During these discussions, the network companies not only supported the proposals from the DoE to move from an ex-post to an ex-ante capex review approach, but also requested being closely involved and managing this process (by transferring the review process to the scope of work of the Technical Assessor).
- 4.4.5 While we will not repeat this debate here – we refer to the published consultations and proposals in the RC1 – we note that one of the key aspects that the network companies were keen to derive from the capex reviews was related with the opportunities to identify and develop pragmatic implementation plans around areas of improvement in their businesses. The DoE therefore does not understand why the distribution companies did not implement yet the capex reviews planned for 2018 and 2019 (in particular as they were included in the scope of work of Technical Assessor).
- 4.4.6 It is now evident that all the projects will have to be assessed in an annual ex-post review exercise during the price control period.
- 4.4.7 Moreover, the DoE engaged with the sector to understand their capex allowance forecasts based on the revised plans. The Table below presents the latest forecasts.



Table 5: Capex allowances for the RW RC1 period

<i>AEDm, nominal prices</i>	2018	2019	2020	2021
AADC Recycled Water	-	-	6.3	10.5
ADDC Recycled Water	-	282.1	635.7	355.5

4.4.8 For providing an initial view of the RW RC1 MAR in this draft proposal, we have considered the capex planned for the period 2018-2021 without including any efficiency assessment factor. The MAR will then be adjusted once the ex-post capex efficiency review is concluded.

Draft Proposal

4.4.9 The DoE will adopt the approach for annual ex-post capex reviews, and the application of the resulting efficient factor to adjust the MAR annually.

4.5 Regulatory depreciation

4.5.1 The first and second consultation papers 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 asset introduced during the RC1 period.

Responses and assessment

4.5.3 In their response, 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, the distribution companies also added that a 30 year asset life assumption should be considered for depreciating the initial RAV.



4.5.5 In the presence of a zero initial RAV for the distribution companies – as proposed in this consultation – the discussion in relation to average asset life is not relevant. In any case, considering the hypothetical case of a positive initial RAV, we consider that the default position should be to use the remaining average asset life included in the companies' accounting statements for the purposes of calculating depreciation of existing assets in the RW RC1. If this is not available, we consider that there may be benefits in considering a single asset life assumption for regulatory purposes, and would therefore propose that 40 years asset life assumption should be used in the RW RC1 for depreciating all assets.

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

Table 6: Depreciation for the RW RC1 - Draft Proposal

Total Depreciation	RC1			
	2018	2019	2020	2021
AEDm, 2018 prices				
AADC Recycled Water	-	-	0	0
ADDC Recycled Water	-	3	14	26
Total	-	3	14	26

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.

Draft Proposal

4.5.8 We propose to apply the approach agreed by distribution companies in response to the previous consultation papers, by applying straight-line depreciation and a regulatory asset life assumption of 40 years for new recycled water assets.



4.6 Cost of capital

4.6.1 In the first and second consultation, 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 Moreover, AADC's view is that the WACC should be correspondingly higher to reflect the increased risk associated with the recycled water business. DoE have requested AADC to justify how the recycled water business would have a higher risk than the water or electricity sector to justify a revision of the WACC.

4.6.4 To date, ADPower have not responded to any of the consultation papers nor given their opinion on the WACC. Moreover, the DoE requested AADC to provide justification of increased risk associated with recycled water business to justify a different WACC.

4.6.5 Given the lack of justification and no response from ADPower to use a different WACC, the DoE will adopt a WACC of 4.6% for the RW RC1.

Draft Proposal

4.6.6 The DoE proposes to adopt 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, and incentive arrangements, 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 second consultation. 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 (RC1 Financial Model to update the RAVs and calibrate the notified values) alongside the second consultation. **The Annex** sets out the main calculations from the RC1 Financial Model and line-by-line description of these calculations by reference to the 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 was set out above we are not including now) in the MAR formula, and the value of the X-factor. In this second consultation, 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”:

$$\text{Required revenue} = \text{Opex} + \text{Depreciation} + \text{Return on capital}$$

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:

$$\text{NPV of projected annual MARs} = \text{NPV of required revenues}$$

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 Q 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 The allowed revenue for 2018 and 2019 is not published as cost information and justification is required from the companies. As mentioned in Chapter 3, the 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 7: Results

Results		2020
X Factor		0.00
AADC Fixed revenue term (a)	AED million	17.59
ADDC Fixed revenue term (a)	AED million	103.14



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 draft 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.

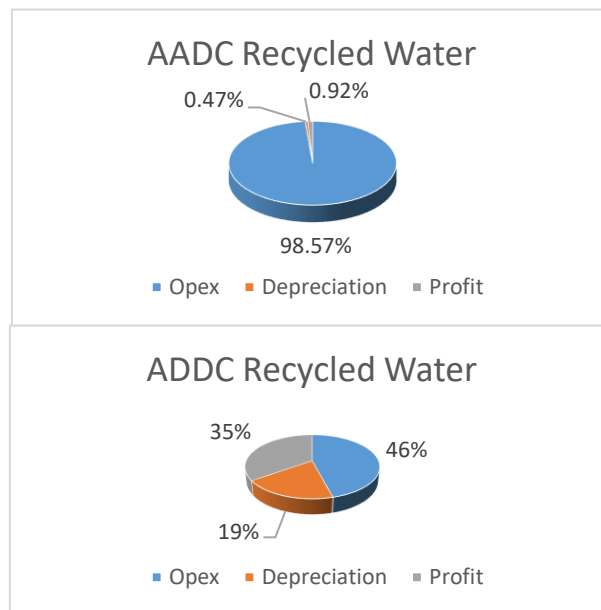


Figure 4: MAR Constituents



6. Annexes

AADC Price Control Calculations – RC1 Draft Proposal

		RC1				
Inputs		2018	2019	2020	2021	
Operating expenditure allowance	AEDm	-	5.05	16.20	18.52	
Opening RAV	AEDm	-	-	-	1.78	
Closing RAV	AEDm	-	-	1.78	10.82	
Mid-Year RAV	AEDm	-	-	0.89	6.30	
Total depreciation for RC1	AEDm	-	-	0.02	0.16	
Forecast for revenue driver 1	Fixed term	1.00	1.00	1.00	1.00	
	Customer					
Forecast for revenue driver 2	Accounts	0	0	0	0	
PV of financing costs foregone on PC4 and PC5 capex					0.00	
	AEDm					
Cost of capital (real)					4.60%	
Weight in revenue for Revenue driver 1					100.00%	
Weight in revenue for Revenue driver 2					0.00%	
Weight in revenue for Revenue driver 3					0.00%	
X Factor					0.00	
RC1 Required Revenue Calculations		2018	2019	2020	2021	PV Share in 2020 & 2021 at 1 January 2018
Operating expenditure allowance	AEDm			16.20	18.52	30.30
Total depreciation for RC1	AEDm			0.02	0.16	0.16
Return on mid-year RAV	AEDm			0.04	0.29	0.28
Annual revenue requirement	AEDm			16.26	18.97	30.74
Discounted annual revenue requirement	AEDm			14.53	16.21	30.74
PV of financing costs foregone on PC4 and PC5 capex	AEDm					0.00
PV of revenue requirement (after foregone financing costs)	AEDm					30.74
Results		2018	2019	2020	2021	
Fixed revenue term (a)	AED million			17.59	17.59	



ADDC Price Control Calculations – RC1 Draft Proposal

Inputs		RC1				
		2018	2019	2020	2021	
Operating expenditure allowance	AEDm	-	35.57	39.06	55.97	
Opening RAV	AEDm	-	-	270.47	855.16	
Closing RAV	AEDm	-	270.47	855.16	1,154.49	
Mid-Year RAV	AEDm	-	135.23	562.81	1,004.83	
Total depreciation for RC1	AEDm	-	3.42	14.34	25.89	
Forecast for revenue driver 1	Fixed term	1	1	1	1	
Forecast for revenue driver 2	Customer Accounts	0	0	0	0	
PV of financing costs foregone on PC4 and PC5 capex	AEDm	0.00				
Cost of capital (real)	%	4.60				
Weight in revenue for Revenue driver 1	%	100.0				
Weight in revenue for Revenue driver 2	%	0.00				
Weight in revenue for Revenue driver 3	%	0.00				
X Factor		0.00				
RC1 Required Revenue Calculations		2018	2019	2020	2021	PV Share in 2020 & 2021 at 1 January 2018
Operating expenditure allowance	AEDm			39.06	55.97	82.73
Total depreciation for RC1	AEDm			14.34	25.89	34.93
Return on mid-year RAV	AEDm			25.89	46.22	62.63
Annual revenue requirement	AEDm			79.29	128.08	180.28
Discounted annual revenue requirement	AEDm			70.85	109.43	180.28
PV of financing costs foregone on PC4 and PC5 capex	AEDm					0.00
PV of revenue requirement (after foregone financing costs)	AEDm					180.28
Results						
Fixed revenue term (a)	AED million			103.14	103.14	