

## Affinity Water's response to Accelerated infrastructure delivery project: draft decisions

We welcome the publication of Ofwat's draft decisions on accelerated funding schemes and are pleased to see a number of our proposed schemes are assessed to have met the criteria. We are confident that the acceleration of this funding will enable us to deliver greater value and resilience to our customers

Below we have provided specific responses to concerns raised for those schemes that have not yet been assessed to have met the criteria. We have taken these concerns on board and only looked to provide detailed responses where we believe further clarification or evidencing may affect future assessment. We are aware that the constrained templates of initial submissions and the narrow query and responses that followed may have resulted in insufficient clarity or depth in our submissions in some areas, for example in optioneering of the proposed solutions or context of existing DWI notices. We therefore welcome the opportunity to include more detail in these areas, where relevant to the concerns raised.

We also provide response for each of the PCDs as outlined in Appendix 2. Whilst we welcome this additional protection for customers, we believe PCDs have the potential to create unintended negative consequences if not designed carefully. For example limiting further optioneering in later detailed design stages that could otherwise provide better value to customers, or in creating a disproportionate reporting burden.

We also note that the design of PCDs for PR24 risks companies taking significantly divergent approaches across similar scheme types, creating avoidable complexity and incomparability between companies. We would therefore welcome further discussions with Ofwat regarding the design of PCDs within PR24 business plans.

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## Response to proposed PCDs for 'Met Criteria' schemes

### Overall response on materiality of investments for PCDs

In the PR24 Final Methodology, Ofwat states, "We do not anticipate having PCDs on all enhancement lines, programmes of work or schemes. However, we expect companies to fully consider them in all areas **where investment is material** and where the benefits are not easily tracked through performance commitments."<sup>1</sup>

Given the limited materiality of the investment associated with the proposed accelerated funding schemes when considered as bill impact (for example accelerated funding for Scheme 8 has a £0.02 impact on the bill) or proportion of overall expenditure, we request further clarification as to whether;

- i. Ofwat deems these investments to be sufficiently material to warrant PCDs inline with the Final Methodology
- ii. Ofwat expects PCDs for these schemes irrespective of materiality of investment, due to their accelerated nature
- iii. PCDs may not be appropriate for all accelerated schemes where investment is not material

We recognise that the accelerated nature and novelty of PCDs within the industry may warrant the PCDs at the low levels of materiality as proposed, however we do not view this as an appropriately high level of materiality for investments within the PR24 business plan given the associated reporting burden.

### Overall response on PCDs for nitrate schemes

The PCDs proposed for Schemes 8 and 9 relate to the volumetric treatment capacity of new assets to be provided. While similar to the PCD originally proposed in our submission in Autumn 2022, there is a critical difference in that we proposed a specific flow rate of water that would be covered by "provision of nitrate management solution" rather than specifying that a given treatment process must be provided. While we are willing to accept this element of these PCDs in the interest of protecting customers and progressing these schemes quickly, we are concerned that PCDs of this nature may have an unintended consequence of limiting further optioneering in later detailed design stages. Our analysis and optioneering has shown that a treatment solution is the most appropriate solution to address the deteriorating water quality at these two sites, however, should new information, approaches or technologies emerge, the new definition limits our ability to adapt our approach if better value options emerge.

We would welcome the opportunity to discuss how PCDs in such instances may be defined to maximise both value and protections for customers.

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<sup>1</sup> [Final Methodology Appendix 9](#), page 119

## Scheme 7 - Smart Metering

**We accept this PCD as defined.**

## Scheme 8 - Broome Nitrate

**We accept this PCD as defined excluding concern below.**

Given the PCD includes the delivery of the scheme itself within the 2025-2030 period, we are keen to discuss how the PCD will be applied to the accelerated portion of scheme costs should the scheme not be funded in PR24 Final Determination, or the scheme not go ahead due to exogenous factors beyond management control.

We would welcome clarity on the application of PCDs in these circumstances in the Final Decision document.

## Scheme 9 - Kingsdown Nitrate

**We accept this PCD as defined excluding concern below.**

Given the PCD includes the delivery of the scheme itself within the 2025-2030 period, we are keen to discuss how the PCD will be applied to the accelerated portion of scheme costs should the scheme not be funded in PR24 Final Determination, or the scheme not go ahead due to for exogenous factors beyond management control.

We would welcome clarity on the application of PCDs in these circumstances in the Final Decision document.

## Scheme 17 - Holywell PFOS

**We accept this PCD as defined excluding concern below.**

Given the PCD includes the delivery of the full scheme including components within the 2025-2030 period, we are keen to discuss how the PCD will be applied to the accelerated portion of scheme costs should the scheme not be funded in PR24 Final Determination, or the scheme not go ahead due to for exogenous factors beyond management control.

SECTION	FEEDBACK
<p><b>Description</b></p>	<p>Ofwat proposes; "Bringing forward the replacement and reinstatement of 12 number (18m3 per filter) granular activated carbon filter media treatment process to meet rising PFOS challenge (...)"</p> <p>Our proposed scheme, on which costs have been based, is to reinstate and replace the carbon media within up to <b>six</b> existing adsorbers. <b>Our plans and associated costings do not include the replacement of the adsorber structures themselves, as may be inferred from the PCD description as proposed.</b></p> <p>Secondly, we may achieve necessary PFAS removal to safeguard customers with fewer than the full 12</p>

	<p>adsorbers having media reinstated or replaced. We therefore <b>suggest it is inappropriate that the PCD for the accelerated component of this scheme is contingent on the delivery of reinstatement or replacement of media across all 12 adsorbers</b>, we instead propose that the accelerated funding is only contingent on the delivery of the initial 6 (as costed).</p>
<p><b>Output Measurement and reporting</b></p>	<p>Ofwat uses the terminology “enhanced media”. To clarify, the adsorbers currently contain media that is fully exhausted and providing no treatment benefit. The media we are proposing to install will be selected to be suitable for PFAS removal, it is unclear whether this will meet the “enhanced” description. We instead propose use of the terminology “regenerated or replaced media” for accuracy.</p>
<p><b>Forecast deliverables</b></p>	<p>We may achieve necessary PFAS removal to safeguard customers with fewer than the full 12 adsorbers having media reinstated or replaced. We therefore <b>suggest it is inappropriate that the PCD for the accelerated component of this scheme is contingent on the delivery of reinstatement or replacement of media across all 12 adsorbers</b>, we instead propose that the accelerated funding is only contingent on the delivery of the initial 6.</p>

**Scheme 18 - Stortford water quality - Nitrate & Resilience**

**We accept this PCD as defined.**

## Response on Schemes with 'Some concerns'

### Schemes 1 to 5 – Connect 2050

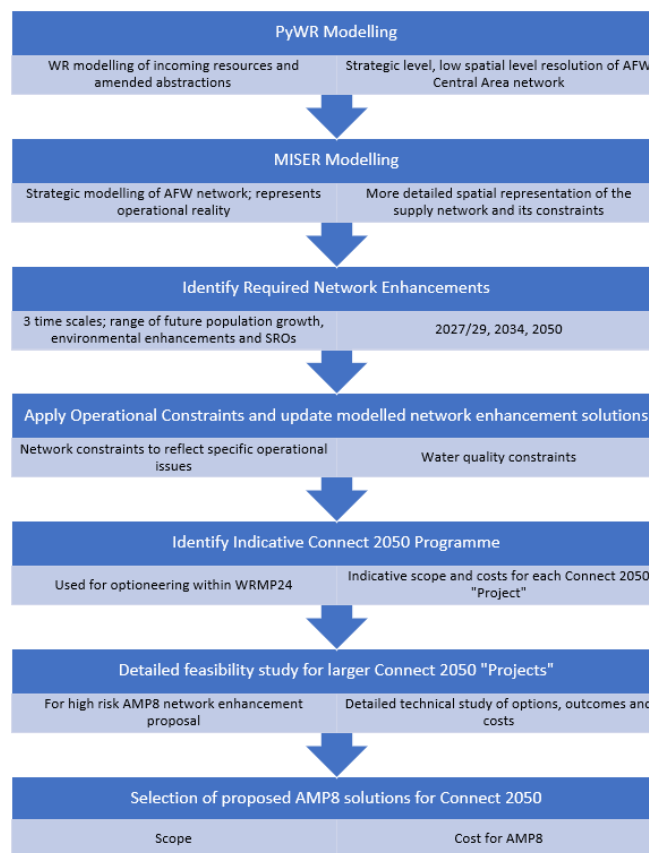
#### Concern raised by Ofwat:

- i. These schemes are preferred solutions in dWRMP24 however we have raised concerns about Affinity Water's dWRMP in our consultation response including concerns relating to options sufficiency meaning we do not have full confidence it represents the best option. There are complex dependencies between Affinity Water schemes 1-5 which raise some concerns about the outputs each would achieve. Although the options appear to have a low unit cost it is unlikely that this can be realised independently of the other schemes proposed. Supporting schemes AFW 1-5 would significantly raise the unit cost which does not give us confidence to support this option for acceleration.

#### i. How we have ensured that the proposed schemes are the best option

The Connect 2050 programme has been derived using a holistic, tiered approach of extensive modelling and options appraisal. This is illustrated in Figure 1 below.

**Figure 1 - Connect 2050 optioneering process**



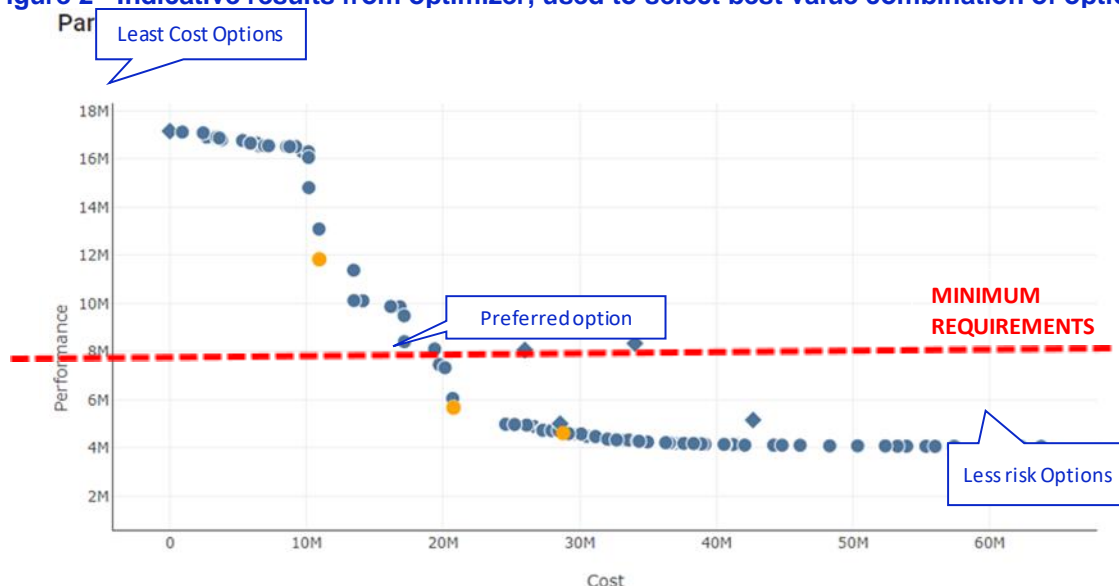
The PyWR and MISER modelling was undertaken across a wide range of scenarios – identifying the optimum combination of solutions that resolved the full range of scenarios. Ultimately, the MISER modelling, which provides an operationally realistic representation of the AFW network, was used to determine if any of AFW's supply zones are showing deficits of supply under any of the scenarios. Enhancement solutions could then be developed to address any such supply shortfalls. If other zones are in surplus, but the existing supply network is at capacity, then infrastructure can be identified to link up the areas of surplus water with those which are in deficit. The scenarios considered in developing this optimum solution set included:

- Drought resilience
- Population Growth
- Sustainability Reductions
- Strategic Resource Options and Different Long Term Supply Strategies (SROs)

After the regional modelling was undertaken within Pywr, MISER was used to identify the network constraints causing water to be trapped. The Optimizer was then used to select the most cost effective and best value options, including required sizing of trunk mains and boosters pumps within each solution.

For each of the selected investment proposal a minimum of 20,000 different options have been evaluated. The Pareto front is the set of optimal plans from the Optimizer run arranged given their objective values, with other alternatives rejected as providing less value. This is illustrated in Figure 2.

**Figure 2 - Indicative results from optimizer, used to select best value combination of options**



We accept that the interdependencies inherent within optimised solutions within complex water networks creates challenges when comparing outputs on a unit cost basis. However, the solution proposed represents the best value and each schemes outputs and outcomes can be assessed independently, as per the proposed PCDs outlined below.

Schemes	Schemes outputs and outcomes	Scheme price Control Deliverables
1 - Connect 2050 - Hatton Cross 2 Booster pumping station (BPS) including pipe laying	<p>Scheme outputs 1 - Length of Trunk Main laid</p> <p>Scheme outputs 2 - Additional transfer capacity Wey to Pinn</p> <p>Scheme outcomes 1 - Enabling additional 13MI/d transfer capacity Wey (WRZ6) to Pinn (WRZ 4)</p>	<p>Scheme price control deliverable 1 - Additional 13MI/d transfer of capacity Wey(WRZ6) to Pinn(WRZ 4) provided through new link (Hatton Cross 2 to Harefield Umbrella)</p> <p>Scheme price control deliverable 2 - by end-AMP7, relevant planning permission will be secured and detailed design complete (externally assured as necessary)</p>
2 - Connect 2050 - Ickenham to Harrow TM and New BPS	<p>Scheme outputs 1 - Length of Trunk Main laid</p> <p>Scheme outputs 2 - Additional transfer capacity to allow for 21MI/day (2029 needs) + civils, power and surge protection to allow for 30MI/day (required 2050)</p> <p>Scheme outcomes 1 - Enabling projected levels of demand for 2029 to be met by ensuring 1 in 10/200/500 drought scenarios can be accommodated in Pinn (WRZ4)</p>	Scheme price control deliverable - 9Km of Trunk Main delivered by 2028
3 - Connect 2050 - Increase DO Chertsey/Walton	<p>Scheme outputs 1 - Nr treatment works delivered</p> <p>Scheme outputs 2 - Total additional treatment capacity</p> <p>Scheme outcomes 1 - enabling 240MI/d output from Wey WRZ to be maintained to allow the transfer of effective ADO to WRZ 4</p>	Scheme price control deliverable - by end-AMP7, relevant planning permission will be secured and detailed design complete (externally assured as necessary)
4 - Connect 2050 - Midway North BPS upgrade	<p>Scheme outputs 1- Booster transfer capacity</p> <p>Scheme outputs 2 - Wey to Pinn Transfer capacity</p> <p>Scheme outcomes 1 - Provide Booster transfer capacity to transfer 25 MI/d transfer from WRZ6 to WRZ4, contributing to 38MI/d transfer WRZ6 to WRZ4 in order to enabling demand levels for 2029</p>	<p>Scheme price control deliverable 1 - Provision of a pumping station with a capacity of 25 MI/d by 2026</p> <p>Scheme price control deliverable 2 - by end-AMP7, relevant planning permission will be secured and detailed design</p>



	to be met. Meeting EA abstraction reductions to be achieved	complete (externally assured as necessary)
5 - Connect 2050 - Transfer water from Egham to Harefield including BPS upgrade	<p>Scheme outputs 1- length of trunk main laid (up to 26Km)</p> <p>Scheme outputs 2 - Transfer capacity of 38 MI/d Wey (WRZ6) to Pinn (WRZ4) including (13MI/day through Hatton Cross 2 + 25MI/day through Midway North) by 2028.</p> <p>Scheme outcomes 1 - Enabling demand levels for 2029 to be met. Enabling 38 MI/d transfer from Wey (WRZ6) to Pinn (WRZ4)</p>	Scheme price control deliverable - Upgrade to Egham <b>Low High</b> lift Booster Pumping Station and additional trunk main linking Wey (WRZ6) to Pinn (WRZ4) providing an additional capacity of 38 MI/d

## Scheme 6 - Connect 2050 - Harefield to Oxhey and Oxhey to Bushey BPSs

Concern raised by Ofwat:

**Scheme is to increase strategic transfer capacity and was selected for AMP11 in the dWRMP24 as part of Affinity’s Connect 2050 plan, brought forward to 2024. There is some uncertainty over water resource benefit to Colne WRZ to meet 2029 demand and inconsistency between the submission and the query response. This suggests there is uncertainty around water resources benefit / outputs. The unit cost is relatively low, however this is based on uncertain outputs and is likely to be dependent on other Connect 2050 schemes. Given the information provided and the concerns we have expressed relating to Affinity Water’s WRMP, we are not confident it is the best option. This concern is exacerbated by the significant acceleration, which raises questions whether it is the best option at this time, and the ambiguity around outputs**

Please see part i. of our response to scheme 1-5 for further explanation of how this solution was identified through a process of optioneering. We are confident in the water resource benefits as outlined in our submission (repeated below) and that this represents a no/low regret investment within the accelerated funding period. We are would welcome a discussion about the inconsistency between submission and query response.

- Scheme outcomes 1 - Meeting 2029 supply demand levels (25MI/day)
- Scheme outcomes 2 – Civils, power and surge protection to meet 2050 needs (34MI/d)

## Scheme 13 - Network Calming - Intelligent pressure management

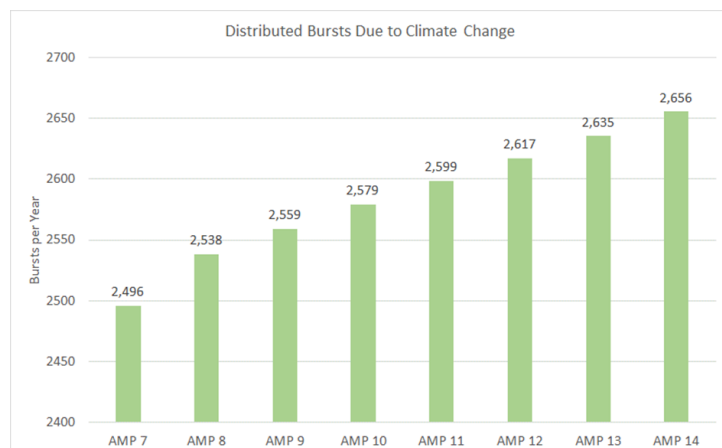
### Concern raised by Ofwat:

**Proposal to install 662 new pressure reducing valve (PRV) controllers and 37 new PRVs (with intelligent controllers). Company states that this will deliver 238 less main repairs and 0.5MI/d leakage saving by 2025-26. Proposed scheme only has partial alignment with the company's dWRMP24 demand management option. The leakage unit costs are very high so some concerns as to whether this is the best option. The company is outperforming on its PR19 mains repairs performance commitment, meaning some concerns about need for investment requiring additional funding from customers to do more.**

Our dWRMP demand management option is being updated and will accurately reflect the latest business case for network calming. On an in-AMP unit cost basis, network calming represents a high-cost solution and would hence be cost prohibitive as an in-AMP Base totex leakage option. However, network calming will reduce leakage for the duration of the asset lives of the equipment installed, representing a lower-cost solution over the 25-year period, as outlined per pressure management solutions within our dWRMP. In addition, given the simultaneous benefit to other key performance areas, to achieve best value to customers we do not consider unit cost comparison of a single metric in isolation when considering whether this is the best option.

Whilst the company performed well in 2021/22 period against the PR19 target, this performance is highly variable due to the exogenous impacts of weather, meaning in-year performance levels is not a good indicator of underlying conditions or future performance. Modelling indicates the impact of climate change (through changes in weather patterns creating more shrink-swell ground movement in the prevalent clay soils within our region) will significantly increase the rate of bursts in our water network, requiring a step-change investment to offset this. Figure 3 displays the increase from an AMP7 baseline level.

**Figure 3 – Forecast impact of climate change on mains burst rates**



We would welcome the opportunity to discuss this specific investment in more detail, given the complexity and lack of precedent.

### Scheme 14 - WINEP - Uttlesford Bridge

#### Concern raised by Ofwat:

**Uttlesford Bridge is part of Affinity Water's Connect 2050 plan and was selected for AMP11 in the dWRMP24. The proposal is to bring it forward to deliver 16MI/d benefit in 2029 to increase water resilience in the Stort WRZ when the Uttlesford Bridge pumping station is turned off due to AMP8 sustainability reductions. This scheme will produce an additional WAFU of 16MI/day and storage of 20MI for WRZ5 (Stort). There is no additional DO as this is an internal transfer scheme. The unit cost is not unusually high, however, it has a high overall cost. Given the concerns we have raised on Affinity Water's WRMP, we are not sufficiently confident that this is the best option. This concern is exacerbated by the significant acceleration which raises some concerns about whether it is the best option at this time.**

We accept this draft decision with no further response and have discussed the drivers for this scheme with the Environment Agency due to the high overall cost.

### Scheme 17 - Temple End Turbidity

#### Concern raised by Ofwat:

**New filtration to avoid prolonged run to waste. 0.67 MI/d water available for use increase from 2024-25, minimises Anglian Water import and therefore Affinity Water opex costs. No clear or quantified need assessment or why this is best option for addressing these needs. DWI to support with revision to existing legal instrument with delivery in AMP7. AMP7 costs are covered as part of PR19 settlement and not an acceleration in AMP7.**

We accept the draft decision with no further response with regard to accelerated funding and will provide greater detail within our PR24 Business Plan.

## Response on Schemes 'Significant Concerns'

### Scheme 15 – Biodiversity

#### Concern raised by Ofwat:

**Significant concerns. Proposed implementation of approved land management plans developed as part of PR19 WINEP. Without acceleration delivery likely to be through PR24 WINEP. Company states the benefits will be to improve raw water quality and water resource yields but without quantifying these (ie no quantified benefit to water resilience). Provided biodiversity metric benefits using old Defra tool that will be updated, but at present would be unable to track outputs consistently for PR24.**

We accept this draft decision with no further response with regard to accelerated funding and will provide greater detail within our PR24 Business Plan.

### Scheme 16 – Borehamwood Transfer

#### Concern raised by Ofwat:

**Proposal to improve resilience if Anglian Water and/or Thames Water imports are reduced. However, the risk associated with these imports is not quantified, and therefore the need for investment is not clear. There is no clear optioneering to identify whether this is the best option. The scheme provides cost savings to Affinity Water so could be progressed through base as spend to save.**

This scheme provides additional resilience of supply to 12,000 – 16,000 properties. Due to the reliance on other water company assets to supply this hydraulic zone on a 'best endeavours' agreement basis, likelihood is inherently difficult to accurately quantify, being driven by other company assets and operational decision making. However, we can expect that these imports will regularly become unavailable during the increasingly frequent high demand periods, as seen in the hot weather period of summer 2022, when this most recently occurred.

This scheme brings forward a component of an AMP11 scheme, bringing additional resilience to 55,000 customers without materially increasing overall costs. In-depth optioneering cannot be undertaken for this component of the overall AMP11 solution in isolation, as the required solution is defined by the overall AMP11 requirements to remain a 'no regrets' option and align with the overall AMP11 scheme optioneering analysis. Optioneering has been undertaken for the overall AMP11 solution, as detailed within dWRMP, following the same methodology as our wider Connect 2050 schemes, as outlined in Figure 1. For these we have used MISER to consider alternative options and develop the optimal resilience strategy to respond to an outage or reduction of import from Fortis Green(Thames Water) or

Grafham (Anglian Water). Scheme 16 is the optimal option, it enables maximising the number of customers supplied in Lee (WRZ3) and Stort (WRZ5).

We recognise that the scheme does provide an opportunity for potential cost saving in import costs, however this is partially offset by the operation & maintenance costs associated with the additional assets and the costs of producing and conveying the additional volume within our network. We do not believe this should preclude the investment from enhancement (or accelerated enhancement) costs entirely.

## Response on Schemes 'Not approved'

### Schemes 11 to 12 – Egham & Iver Cryptosporidium Resilience

#### Concern raised by Ofwat:

**Existing DWI legal instrument for improvement is in-place (post PR19) and work has commenced in AMP7 that will continue into AMP8 at these major surface water treatment works. AMP7 costs are covered as part of PR19 settlement and not an acceleration in AMP7. Any proposals for possible enhancement expenditure may be part of DWI PR24 programme.**

We do not believe this concern accurately reflects the nature of the DWI notices or the work funded to be undertaken within AMP7. The AMP7 undertaking will complete by Nov and Dec 2023 at Egham and Iver respectively and has been funded from the PR19 settlement (despite it not being included in the PR19 business plan or FD due to DIW timings). The scope and outcome of this AMP7 work is distinctly separate to that to be delivered within the AMP8 period and should not be considered a continuation of the same scheme, despite being undertaken at the same sites. We would welcome further detailed discussions to clarify this position.