

Abstraction incentive mechanism (AIM) – Recommendation of the AIM taskforce

Introduction

The Abstraction Incentive Mechanism (AIM) is a means by which water companies can be incentivised to reduce their abstractions from environmentally sensitive water sources when river flows are low.

AIM is one potential tool that companies have for reducing abstraction from sensitive sources. The other, and more common approach, is for the abstraction licence to be changed. However, this is likely to result in a reduction in the volume of water available to the company and may trigger the requirement for investment in expensive alternative water resources or demand management measures. Licence changes are likely to have been driven by Habitats Directive reviews, Restoring Sustainable Abstraction (RSA) or WFD studies. AIM by contrast does not involve a change in the licence and therefore does not affect a company's ability to abstract from a source - should that be necessary. The costs are therefore likely to be a lot lower, but by contrast there is no guarantee of a reduction in abstraction at all times, including potentially the most sensitive times. That said, the AIM does provide an incentive to water companies to do what they can, when and where they can, to reduce the risk of environmental damage from abstraction without reducing their right to take as much water as they wish, within their licensed entitlements.

It is important that AIM does not develop into a new round of abstraction impact assessments. This should continue to be driven by the formal processes referred to above. AIM provides an alternative mechanism to licence changes for achieving reductions in actual abstractions. The taskforce believes this applies equally to the current abstraction licence system and the possible changes being considered under the Abstraction Reform process.

This proposal has been developed by the Abstraction Incentive Mechanism Taskforce at the request of Ofwat. It is intended to guide Ofwat in setting a reputational incentive for the AMP6 period and potentially a financial incentive for AMP7. The members of the taskforce are listed in Appendix 1.

The proposal makes recommendations on the following:

- What the objective of the AIM should be
- To which of a company's sources should it apply

- The definition of when AIM applies
- Definition of the AIM baseline – i.e. how much the source would be used on average if there were no AIM
- Definition of the AIM incentive
- Calculation of a reputational incentive for AMP6
- Calculation of a potential financial incentive for AMP7

Objective of AIM

The objective of AIM is to provide an incentive to reduce abstraction from sources that are proven or there is some evidence that they are having , an impact on the environment at certain times. The reduction in abstraction at an AIM source will be achieved by taking more water from other existing sources that have less risk of impact on the environment or by reducing the amount that needs to be abstracted from the AIM source via demand management.

The change in abstraction is not guaranteed. Companies will make regular operational decisions as to whether at any given time it is possible or prudent to reduce abstraction and benefit from the incentive, whilst helping the environment.

If an environmental issue is such that a guaranteed reduction in abstraction is required then AIM is not the appropriate approach, at least not in isolation. These changes are managed through the Restoring Sustainable Abstraction and the National Environment Programme and a number of these schemes have been included in business plans for AMP6.

Given that the abstraction reduction is not guaranteed and it can be expected that water companies would continue to abstract when it is prudent to do so then there is no impact of the AIM approach on deployable output.

In essence AIM offers an Opex contribution to helping address abstraction issues rather than a Capex one, whilst at the same time offering opportunities for reputational advantage.

Identification of sources to which AIM should apply – the where?

Where possible AIM should apply to individual sources. Companies may feel that it should apply to groups of sources – in which case justification should be provided.

Filter 1 – Environment

Possible AIM sources should be identified as those causing, at times, a potentially unacceptable impact on the environment if operated at licensed or current rates. EFIs, CAMS or WFD assessments (especially WFD Band 1, 2 and 3 sites) may contribute to defining the possible sources, but in addition to these theoretical “mathematical” assessments ideally there should be some evidence that it is water company abstraction that is causing environmental concern.. Exceptionally AIM may be appropriate for managing local concerns over the impact of an abstraction on the local environment.

Filter 2 – Scope to manage abstraction

An AIM source (or group of sources) will probably have an existing alternative source of water or bulk supply available to meet the demand that would normally come from the AIM source or some other realistic means of reducing abstraction from the AIM source. Thus where companies have limited surplus resources the opportunity for AIM may be constrained although a company may be prepared to bear additional risk in maintaining operational headroom. During periods of environmental stress, companies should consider opportunities to switch abstraction between sources, and to reduce waste, leakage and demand to enable reduced abstraction in general. Proactive customer engagement and coordinated campaigns with local environmental groups present opportunities to reduce demand and thereby help manage demand and therefore abstractions.

Filter 3 – Further refinement

Companies may wish to / need to apply a further filter to the list of AIM sources. These would be company specific reasons but could include for example:

- The need to avoid two AIM sources competing for the same donor water at the same time.
- Sources that are already changed under the restoring sustainable abstraction programme.

- Water quality constraints (e.g. no deterioration for metaldehyde) or wider customer acceptability issues (e.g. hard / soft water changes).
- Insufficient appropriate data available.

As a consequence of applying these filters it is possible that a company may conclude that it has no sites that are suitable for application of the AIM.

For PR14 Ofwat asked companies to report information on their WFD Band 1, 2 and 3 sites in their business plans. Following the application of the above filters Ofwat will want to understand which of a company's WFD sites are considered appropriate for AIM, and if not, an explanation of why they did not pass through the filters.

If possible companies should also identify which sites are likely to pass through filter 3 if the data available were improved.

Wessex Water example – the Mere source was selected for AIM despite a detailed low flow investigation showing no significant impact of abstraction on river ecology. Nevertheless Wessex Water adopted an AIM approach given local concerns and the uncertainties inherent in hydro-ecological studies.

Definition of when AIM applies - the when?

The conditions under which the AIM would apply – the AIM period – need to be defined for each identified AIM source. This will generally be via a hydrological trigger when a reduction in abstraction from the source would be, or is likely to be, environmentally beneficial. Typically this will be a river flow condition, but equally it might be a groundwater level condition, drought trigger or other appropriate measure. In any year the period over which the AIM applies will vary depending on the weather, and will differ from source to source depending on the nature of the source and its interaction with the environment. The triggers for the AIM period should be determined locally for each source depending on the environmental needs.

Affinity Water example – Affinity Water supports ice-age flatworms in Ashwell Springs by recharge from a nearby source once flow in the stream leaving the spring falls below a minimum flow.

Wessex Water example – At the Mere source Wessex Water has used a groundwater level as the trigger for the AIM period. This condition equates to

approximately Q40. The trigger relates both to the hydrology / hydrogeology of the area – i.e. when springs stop flowing, and the flows at which local people get concerned.

Definition of the AIM baseline

The AIM baseline is the average daily abstraction **during the AIM period** that would have taken place from a source if the AIM had not been in place. The baseline average needs to be considered over a range of hydrological and demand conditions. Taking the average of the previous 6 to 10 years is one possible approach but the key consideration is that the period of record selected should be representative of future conditions. For some sources the future may not be the same as the past, e.g. where sources have been subject to sustainability reductions, changes in demand or water quality, or where investment in the assets has caused substantial changes in abstraction. The company should justify how the baseline has been defined, by reference to the data used, to the number and nature of drought and other events included and to any adjustments made to compensate for changes in the record used.

Wessex Water example. The Mere baseline was determined from the 10 years of abstraction prior to the adoption of a trial AIM in 2014. In some years the contribution to the baseline was 0 MI because the AIM trigger never took effect (e.g. 2008/09), whereas in other years the AIM period lasted most of the year (e.g. 2011/12). The baseline value is the average daily export rate during the AIM period over the 10 years which was around 2.5 MI/d. This is illustrated in the graph below.

Figure 1 – Defining the AIM period and baseline - exports from the Mere source when the AIM trigger had been switched on



Definition and calculation of the AIM incentive

For a **reputational incentive** it is recommended that the impact of the incentive is measured as the deviation in the actual use of the source relative to the baseline usage. The AIM incentive, or score, would be calculated as the net sum of abstraction from a company's AIM sources during the AIM periods relative to that of the baseline abstraction. If a company abstracts less than the baseline in a particular year then the score will be positive, if a company abstracts more than the baseline the score will be negative. A score of zero will be neutral. A worked example is given in Appendix 2.

To help with interpretation of the AIM scores companies should make available the calculations underlying their AIM scores so that changes at each abstraction site can be seen. Companies should also provide information on how many AIM sites they have, the size of the AIM baseline in MI/day and particular pressures they face to help stakeholders understand their performance.

Companies with no sources suitable for AIM should be clearly segregated from those with AIM sites in any Regulatory reporting requirements.

For a **financial incentive** the AIM score would be multiplied by a unit (per MI above or below the AIM baseline) reward / penalty rate. Three options have been discussed for setting this rate.

- Short run marginal cost to use an alternative source, or a multiple thereof
- Assessment of the environmental value of abstraction reduction relative to baseline abstraction
- Customer willingness to pay for abstraction reduction relative to baseline abstraction

Short run marginal cost

The AIM incentive unit rate could be based for each source on the difference in operating cost between the AIM source and the cost of alternative sources. These costs will generally reflect marginal operating costs but may include other periodic cost differences.

A multiple of the difference in operating costs (e.g. 1.2) could be used to provide an incentive beyond cost recovery. Alternatively a multiplier of less than 1.0 could be used to part-fund the additional financial cost.

Environmental valuation

The incentive would be calculated based on an assessment of the value of the environmental gains delivered by the revised abstraction policy.

Willingness to pay

The incentive would be calculated based on customers' willingness to pay for a change in the abstraction regime at the AIM source.

The design of the incentive rate and how it is applied will require considerable thought and detailed analysis, in order to avoid introducing any perverse incentives. Which of the three methods is used for setting a financial incentive should be a matter of further consultation, and could be decided upon locally. If the AIM is to be a single industry-wide incentive then the financial incentive might be set nationally.

However during AMP6 consideration should be given to the scale of the required AIM incentive required for each source compared with the environmental issue identified and a view reached as to whether the environmental benefits arising from the implementation of the AIM justify the additional costs that AIM will bring. If the benefits do not justify the costs then the AIM should not be applied.

For the Mere example Wessex Water uses £50/MI as an incentive. This was based on a figure that Ofwat had been thinking about using. Coincidentally it is about the marginal cost difference between the AIM source (Mere) and the alternatives.

Information that companies need to prepare:

In companies' assurance processes they will need to include the following information for the reputational AIM

- A list of potential AIM sources and the justification of their filtering
- For each source a definition of the AIM period (i.e. the trigger for AIM to apply)
- For each source the baseline average output during the AIM period

There is an expectation that companies will consult the EA on their plans for AIM, although the EA are not responsible for approving companies' AIM plans. For some companies it is possible that when they work through the process of defining potential AIM sites there may not be a requirement to implement AIM.

For a financial AIM in addition companies would need to confirm an AIM incentive rate using one of the methods described above.

Reporting

As a reputational incentive companies will report their performance relative to the defined baseline on an annual basis, and on a cumulative basis – starting in 2016/17. The report will be for both individual sources and at company level (i.e. for all AIM sources). For the reputational incentive, reporting should be in terms of MI relative to baseline, i.e. the AIM score. Optionally this could be normalised (see Appendix 2).

Reporting would be both in the companies' annual reporting process and the annual review of the WRMP.

Timescales

A possible timescale is outlined below.

Date	Action
21 July	This note to be finalised by the taskforce by 21 July and forwarded to Ofwat. At the same time copied for information to the Water UK Water Resources Network.
August	Companies requested via Water UK Water Resources Network to review sources that may have a continuing effect on the environment and that they consider could be appropriate for inclusion under the AIM and share this with the Taskforce, without being prejudicial to their final position.
Early Autumn	Ofwat are then expected to consult on the proposals.
Before Christmas	Ofwat guidance or letter
January 2016	AIM taskforce meeting to discuss progress on AIM site identification
January to March 2016	Companies formally determine AIM sites and required information
1 April 2016	Earliest date for a reputational incentive to start
Annually thereafter	Performance relative to baseline reported

Appendix 1 – Members of the AIM taskforce

Chris Lambert	Thames Water
Mike Pocock	Affinity Water
Lee Dance	South East Water
Colin Fenn	representing WWF
Carolyn Cooksey	Anglian Water
Richard Blackwell	United Utilities
Marcus O’Kane	Severn Trent Water
Nigel Hepworth	Southern Water
Glenis Pewsey	South West Water
Luke de Vial	Wessex Water
Owen Turpin	Environment Agency
Jon Ashley	Ofwat

Appendix 2 - Reputational incentive calculation method – worked example

AIM trigger defined as when flow in River Diddle as measured at Slow Water gauging station is less than 10 MI/d.

Review of historic abstraction from source shows average abstraction during the AIM period (i.e. when flows are less than 10 MI/d in the river) is 5 MI/d.

In 2016/17 the company abstracts an average of 4 MI/d from the source during the AIM period which lasts 100 days in that year. They have therefore outperformed the AIM incentive by 100 MI – a score of +100 MI.

In 2017/18 the company abstracts an average of 6 MI/d from the source during the AIM period which in this year only lasts 50 days. They have therefore underperformed the AIM incentive by 50 MI – a score of – 50MI.

The cumulative AIM score for the two years 2016/17 and 2017/18 would be +50MI.

In general: AIM score = (Baseline average daily abstraction during AIM periods – In year average daily abstraction during AIM period) * length of in year AIM period

Normalisation

To allow comparisons it may be appropriate to normalise AIM scores as follows:

Normalised AIM score = AIM score / (Baseline average daily abstraction * length of in year AIM period)