

3. Remaining Viable Options

3.1 Introduction

The Water Supply Options Working Paper (June 2015) endorsed four viable options which were originally identified from the initial grouping of 10 proposed within the SEA. These included two options involving abstraction from the north east sector of Lough Derg (with and without raw water storage), as well as abstraction from Parteen Basin downstream of Lough Derg, and desalination of seawater abstracted from the Irish Sea.

The Preliminary Options Appraisal Report (POAR) examined these four options, and concluded that the two options involving abstraction from Lough Derg would have a significant impact on lake residence times⁸, and were considered to have a high likelihood of significant impact on the aquatic ecology of the Lough, compromising the ability of these options to comply with the Habitats Directive. Consequently, it shortlisted the two remaining reasonable and technically viable options, namely:

- Abstraction from the Shannon and Parteen, and
- Desalination of Seawater from the Irish Sea

Abstraction from the Shannon at Parteen was the original Option C in the SEA and Desalination was Option H in that document.

3.2 Desalination (Option H)

Desalination draws saline water from the Irish Sea at a point north of Balbriggan. Integration of this new source into the Dublin Water Supply Network was proposed at Ballycoolin Reservoir, with reconfiguration of the Dublin network through Leixlip providing ultimate connection to Irish Water's existing facility at Peamount and to the new Termination Point Reservoir.

A 2km wide route of least constraint for the transmission pipeline between point of abstraction and Ballycoolin Reservoir was defined; traversing a linear distance of 35km. Water treatment through a desalination process would take place at source. Supply to the benefitting corridor of the Midlands Region, via an arterial main passing through the region, as would be the case with abstraction at Parteen Basin (Option C), would not be a feature of the Desalination option. This places the desalination option in a different category with respect to the delivery of key objectives in Irish Water's Water Services Strategic Plan; around consolidation of smaller, isolated and vulnerable water supplies. Accordingly, there is not strict 'like-for-like' comparability between Desalination and abstraction from Parteen Basin, in that abstraction from Parteen permits a coherent rationalisation strategy of more than 100 Midlands water supply schemes, as discussed in Section 5 of this Report, whereas Desalination addresses the water supply issues of Dublin alone, with the Midlands schemes having to be dealt with on a different strategic basis.

The Least Constrained Route Corridor for Option H is shown on Figure 3-1.

⁸ A lake residence time is the amount of time taken for water (or some dissolved substance) introduced into a lake to flow out of it again, and is especially important in managing pollutants.



Figure 3-1 Option H Least Constrained Route Corridor (2km)

A preliminary review of desalination treatment technologies proposed a Reverse Osmosis (RO) plant on account of its technical efficiency and cost effectiveness. Both abstraction, and waste brine, would be returned off shore via long intake and outfall pipelines, to avoid tidal effects, enhance water quality at intake and assist discharge and dispersal of return brine from the desalination process. The Reverse Osmosis process would be supported by extensive pre-treatment following abstraction and post treatment remineralisation to provide treated water of similar hardness and taste to current supply sources.

3.3 POAR – The Emerging Preferred Option (Parteen Basin, Option C)

A relative comparison of the Options within the POAR, based on data available at that time, identified abstraction at Parteen Basin (Option C) as the Emerging Preferred Option as it offers, over Desalination (Option H), these key differentiators:

- A transfer pipeline between Parteen Basin Reservoir and a termination point in Peamount provides a 'Benefitting Corridor' water supply to the communities en route, which is a key objective of Irish Water;
- A transfer pipeline between Parteen Basin Reservoir and a termination point in Peamount offers greatest strategic flexibility for the supply and distribution of a key National Resource;
- A transfer pipeline between Parteen Basin Reservoir and a termination point in Peamount allows for rationalisation of the existing abstraction / water treatment resources, particularly where they are under 'stress' conditions, in the Midlands;
- A conventional water treatment plant, in terms of capital and operational costs, provides much greater value to the consumer.