

13. Concluding Statement

The Preliminary Options Appraisal Report (November 2015) identified two technically viable options for further study in this Final Options Appraisal Report, against the Project Need requirements, 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.

In this regard, the objectives of the Water Services Strategic Plan, to rationalise over time, in an affordable way, the multiple existing water supplies in the Midlands, many of which depend upon isolated, small and vulnerable sources, are relevant.

The Parteen Basin Option and the Desalination Option have quite different characteristics with respect to those objectives. Abstraction and treatment of water at Parteen, with transfer of treated water through the Midlands, provides a strategic basis for bringing more than 100 public water supplies serving Midlands and Eastern communities into a common standard of reliable water supply. Desalination, on the other hand, is a solution to the water quantity dimension of Need, only for Dublin alone, and it would call for a completely different, standalone and sub-optimal strategic approach to Midlands water supplies.

Option C, which involves abstraction from the Parteen Basin, includes the following key components

1. A raw water abstraction point at Parteen Basin;
2. A 330 Ml/d conventional water treatment plant in close proximity to the raw water abstraction point;
3. A supply main, approximately 170km in length between Parteen Basin and a termination point reservoir at Peamount, which is also capable of supplying communities en route.

Option H: Desalination includes the following key components:

4. A seawater abstraction, and brine return point, 3 to 4km off shore near Balbriggan;
5. A desalination plant at Balbriggan; and
6. A supply main, approximately 35km, between Balbriggan and Ballycoolin Reservoir.

Option C (Parteen Basin Direct) was identified as the 'Emerging Preferred Option' in the POAR as it offered a number of key distinct differences:

- A benefitting corridor through the Eastern and Midlands Region that is able to supply communities en route with a reliable and resilient source of supply;
- A sustainable abstraction regime which can be managed within the existing ESB operating works level range without prolongation of residence time on Lough Derg;
- Least risk in terms of environmental, technical, financial, economic and socio-economic factors;
- The direct cost of construction, commissioning and operation are considerably more economical to the consumer than the alternative; and
- Most likely to deliver the objectives of the Water Services Strategic Plan.

Public consultation and extensive stakeholder engagement were undertaken on the determination of Option C (Parteen Basin Reservoir Direct) as the 'Emerging Preferred Option' and on the siting of ancillary infrastructure associated with this option.

This consultative assessment, originally carried out on the POAR related to this 'Emerging Preferred Option', has been documented in this Final Options Appraisal Report. The Final Options Appraisal Report includes the following elements, which address issues raised in previous consultations:

- a) A review of the submissions from the public consultation on the Preliminary Options Appraisal Report, and documentation of the manner in which this feedback, and that received in earlier stages of consultation, has influenced the development of the project;
- b) A review of the supply – demand balance which underpins the Project Need;
- c) A clear explanation of current management of water levels in Lough Derg/ Parteen Basin, showing how that abstraction can be accommodated without change to the existing normal operating water level range, regime;
- d) An economic appraisal, and comparison, of abstraction from the Shannon with the desalination alternative and with reference to a 'Do Minimum' scenario, in the absence of investment in a new source
- e) A water quality survey and model of Lough Derg (ongoing);
- f) Field surveys, and Investigative studies, to identify and appraise potential areas for siting the infrastructure elements that would be needed for a scheme to be constructed. *Note – surveys and studies were carried out within a defined extent (typically 2km) which was determined, and consulted upon, in the Preliminary Options Appraisal Report.*
- g) A multi-criteria analysis, following the field surveys and investigative studies, to inform the identification of those areas within which the potential exists to site the infrastructure required.

The FOAR has validated a 'waypoint interim review' of water demand, supported by detailed assessment of water supplies in the Benefitting Corridor, which is continuing. It has proposed a phasing approach to development of treatment and pumping capacity, so that capacity can match the expected profile of water demand. The FOAR has set out clearly, how abstraction at Parteen Basin can be managed within the existing hydropower station and water level operating regime of ESB, and how the limits of the normal operating water level range on Lough Derg/Parteen Basin, will not need to change in any way, to accommodate the abstraction. Similarly, statutory compensation flows to the River Shannon will not be changed under the proposed abstraction regime.

Supporting work by independent economists has established the cost-benefit characteristics of both main options, as well as those of a 'Do Minimum' option which would have to be pursued in the event that investment in a new source supply is not pursued. Option C, direct abstraction at Parteen Basin, has been found to have the best cost-benefit ratio of the options examined. Hydrodynamic modelling of the Lough Derg/ Parteen Basin waterbody has confirmed the preliminary conclusions of the POAR, based on uncalibrated modelling work at the time, that abstraction from the Parteen Basin will not have flow residence time impacts on Lough Derg.

The advantages offered by Option C (Parteen Basin Reservoir Direct) when compared to Option H (Desalination), originally identified in the Preliminary Options Appraisal Report and outlined above, are affirmed. The review of Midland water supplies, in the context of the strategic objectives of the Water Services Strategic Plan, have placed Option H (Desalination) in a less than 'like-for-like' comparable position, compared to Option C, in terms of meeting key strategic objectives of Irish Water. In addition, Option C represents the preferable investment choice; as it results in a higher net benefit than the alternatives.

It is accordingly concluded, and affirmed, following the foregoing detailed investigative assessment that **Option C (Parteen Basin Direct) is the Preferred Scheme.**