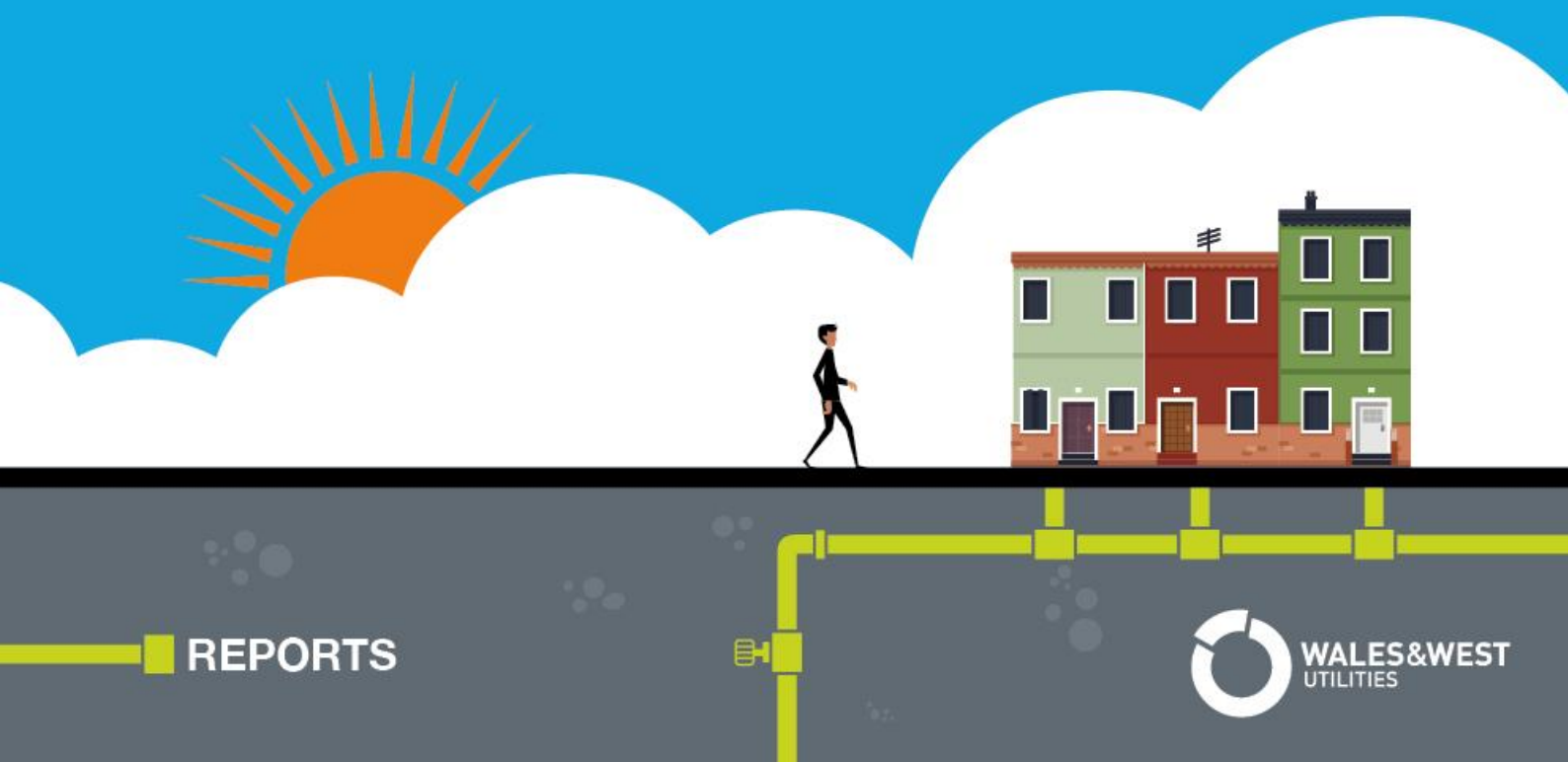


Consumer Value Proposition 2C17: Environmental Action Plan – Preserving the Natural Capital

December 2019



REPORTS



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Legal Notice

This paper forms part of Wales & West Utilities Limited Regulatory Business Plan. Your attention is specifically drawn to the legal notice relating to the whole of the Business Plan, set out on the inside cover of The WWU Business Plan. This is applicable in full to this paper, as though set out in full here.

Overview of Consumer Value Proposition

Commitment name

Environmental Action Plan – Preserving the natural capital

Description

This initiative falls under WWU's Environmental Action Plan and focuses on preserving and enhancing the biodiversity of the environment.

In doing so, WWU commit to planting five trees for every tree they cut down. They estimate this will see 1,000 trees planted per annum. In tandem, WWU will engage with the community and local schools to raise environmental awareness in their network areas.

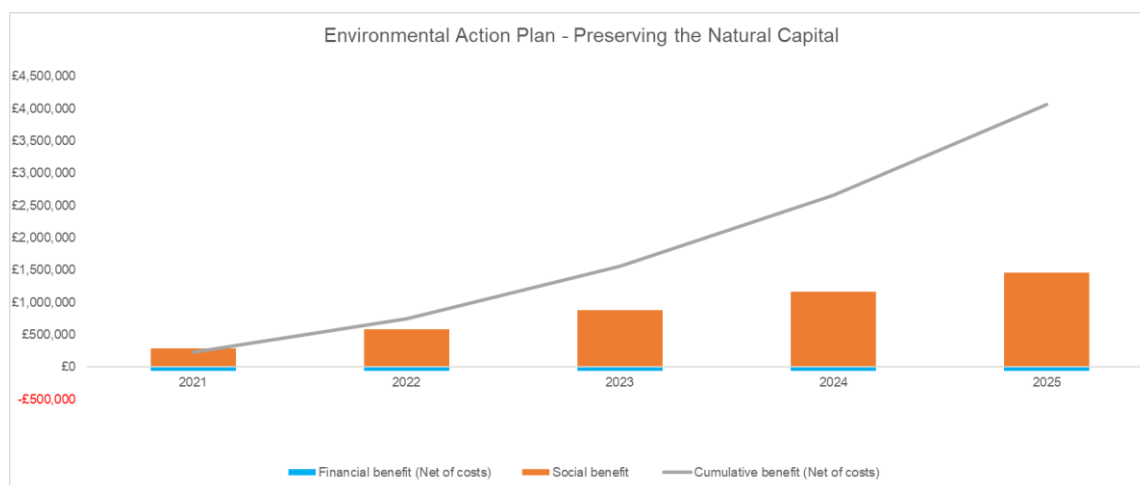
The main beneficiaries of this initiative are society as a whole who will benefit from residing in a cleaner environment and will experience mental and physical health benefits associated with doing so. In addition, the community and schoolchildren within WWU's network area will benefit from unquantifiable benefits linked to increased environmental awareness.

Summary of CVP

Costs and Benefits over RIIO-GD2

Commitment	Cost	Financial Benefit	Social Benefit	Net Present Value	Net Benefit per £ spent
Environmental Action Plan - Preserving the Natural Capital	£325,000	£0	£4,384,622	£3,234,049	£11.22

Cashflow over RIIO-GD2



Summary of CBA inputs

	Name	Description	Value (£)	Source ¹	Probability	Source for probability
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Costs						
Costs	Community projects	The annual cost to engage with the community to raise environmental awareness.	£50,000	Figure provided by WWU	n/a	n/a
	School events	The annual cost to hold events at schools in WWU's network areas to raise environmental awareness.	£10,000	Figure provided by WWU	n/a	n/a
	Planting of trees	The annual cost associated with the planting of 1,000 trees.	£5,000	Figure provided by WWU	n/a	n/a

Benefits						
Social	Carbon sequestration by trees	The capture and storage of carbon dioxide by trees to mitigate global warming. Value is expressed per hectare per year.	£258.06	Vivid Economics, 2017	100%	It is assumed this applies to each hectare of trees that are planted. For the conversion of trees to hectares, see Cost Benefit Analysis (page 7).
	Improved physical and mental health	The avoided health costs a hectare of a park provides each year.	£30,645.16	Vivid Economics, 2017	100%	It is assumed this health benefit is realised for each hectare of green space.

¹ Further information on sources is provided in the Cost Benefit Analysis details section

Cost Benefit Analysis details

Costs

	Name	2021	2022	2023	2024	2025
Financial costs	Community projects	£50,000	£50,000	£50,000	£50,000	£50,000
	School events	£10,000	£10,000	£10,000	£10,000	£10,000
	Planting of trees	£5,000	£5,000	£5,000	£5,000	£5,000
Costs per annum		£65,000	£65,000	£65,000	£65,000	£65,000

Benefits

	Name	Attribution	Drop off	Probability	Proxy	2021	2022	2023	2024	2025
Social	Carbon sequestration by trees	0%	0%	100%	£258.06	£2,441	£4,882	£7,323	£9,764	£12,205
	Improved physical and mental health	0%	0%	100%	£30,645	£289,867	£579,734	£869,601	£1,159,469	£1,449,336
Social benefits per annum						£292,308	£584,616	£876,924	£1,169,232	£1,461,541

- In all cases, attribution has been set at 0%. This is because all of the benefits associated with this initiative are attributed to WWU. It is WWU's initiative, therefore and the social benefits associated with it can be attributed to them.

- Drop off is set at 0%, as we do not expect benefits to decrease over the time frame in question.
- All social benefits are tied to WWU adding net 800 trees per annum to their network areas (1,000 planted, less 200 cut down).
- **Carbon sequestration by trees**
 - The economic value of carbon storage in trees in Greater London is estimated to be £8 million per annum.² It is assumed this refers to all public green space.
 - The total public green space area in London (including parks, community gardens, etc.) is estimated to be 31,000 hectares.³
 - Therefore, the value of carbon storage in trees per hectare of land is £8,000,000 / 31,000 hectares = £258.06.
 - *Table 1.1* below lists the total hectares (2,010) for each of the eight royal parks in London, where there are approximately 170,000 trees planted.⁴
 - Based on this, we assume there are 170,000 / 2,010 = 84.577 trees per hectare of land in London's Royal Parks. This figure has been extrapolated to WWU's network area.
 - WWU will add net 800 trees to their network area per annum over RIIO-GD2. Based on the ratio above, this equates to 9.459 hectares.
 - This will produce a social benefit in year one of approximately 9.459 hectares * £258.06 = £2,441.
 - This value will grow by £2,441 each year as additional trees are planted.

Table 1.1

Royal Park	Hectares ⁵
Bushy Park	445
Green Park	19
Greenwich Park	73
Hyde Park	142
Kensington Gardens	111
Regent's Park	197

² https://www.london.gov.uk/sites/default/files/11015viv_natural_capital_account_for_london_v7_full_vis.pdf

³ https://www.london.gov.uk/sites/default/files/11015viv_natural_capital_account_for_london_v7_full_vis.pdf

⁴ <https://www.royalparks.org.uk/media-centre/news-archive/1512-trees-in-the-royal-parks>

⁵ Links below for each park (in order):

<https://www.visitlondon.com/things-to-do/place/223337-bushy-park>

<https://www.visitlondon.com/things-to-do/place/449608-green-park>

<https://www.royalparks.org.uk/parks/greenwich-park/about-greenwich-park/history-and-architecture>

<https://www.londoncitybreak.com/hyde-park>

<https://www.britannica.com/place/Kensington-Gardens>

<https://www.royalparks.org.uk/parks/the-regents-park/about-regents-park>

<https://www.royalparks.org.uk/?a=45842>

<https://www.londoncitybreak.com/st-james-park>

Royal Park	Hectares ⁵
Richmond Park	1,000
St. James's Park	23
Total	2,010

- **Improved mental and physical health**

- Public green spaces are linked to improvements in mental and physical health.
- In London, the total avoided healthcare costs due to greenspace is valued at £950 million per annum.⁶
- As London has 31,000 hectares of public greenspace, it is assumed each hectare provides a benefit of $\text{£}950,000,000 / 31,000 \text{ hectares} = \text{£}30,645.16$.
- Therefore, in year one we expect a social benefit of $\text{£}30,645.16 * 9.459 \text{ hectares} = \text{£}289,867$.
- This value will grow by £289,867 each year as additional trees are planted.

⁶ https://www.london.gov.uk/sites/default/files/11015viv_natural_capital_account_for_london_v7_full_vis.pdf