

First Fix Scheme

Uisce Éireann

Leakage Reduction Programme

First Fix Leak Repair Scheme

H1 2022 Report to the CRU



Table of Contents

1.	Introduction to the Leakage Reduction Programme	3
2.	Overview of the First Fix Free Scheme	6
3.	How to avail of the scheme	8
4.	Initiatives to increase Customer Engagement Levels	9
5.	First Fix Update	11
6.	Reporting on the scheme	12
7.	Project Expenditure	16
8.	Next Steps	16
	Appendix 1 - H1 2022 First Fix Summary Numbers	16

1. Introduction to the Leakage Reduction Programme

Water is one of our most valuable resources. Clean potable water is expensive to produce and distribute and one of Uisce Éireann's¹ (UÉ) key priorities is to reduce the level of water wasted through leakage.

To enable robust, consistent reporting on Leakage, UÉ has implemented a new National Leakage Management System (LMS). The LMS provides UÉ with accurate and timely leakage information required to target and prioritise leakage reduction, along with the ability to report on the effectiveness of leakage reduction activities. Prior to the LMS being available, UÉ provided the CRU with a figure for unaccounted for water (UFW). As part of the Performance Assessment (PA) Framework², UÉ has transitioned from reporting UFW to reporting Net Leakage.

The PA 2021 annual data report reports net public side leakage. As part of the 2020 PA Framework Decision, the CRU has also requested UÉ to provide an annual net leakage savings figure for customer supply pipe leakage. UÉ identified that additional studies would be required to determine customer side losses and provided the CRU with a Customer Supply Pipe Leakage report for review in December 2022. UÉ will report data on the amount of water lost on customer supply pipes once the CRU's review process has concluded.

UÉ produces approximately 1.7 billion litres of treated water every day. In 2021, some 619 million litres per day were utilised by domestic households, 378 million litres per day were utilised by non-domestic customers with approximately 637 million litres per day reported as net public side leakage³. The equivalent figure for 2020 was 678 million litres per day, indicating an annual saving of 41 million litres per day. As a result of this progress, UÉ remains on track towards meeting the Revenue Control (RC3) 3 (2020 to 2024) leakage reduction target.

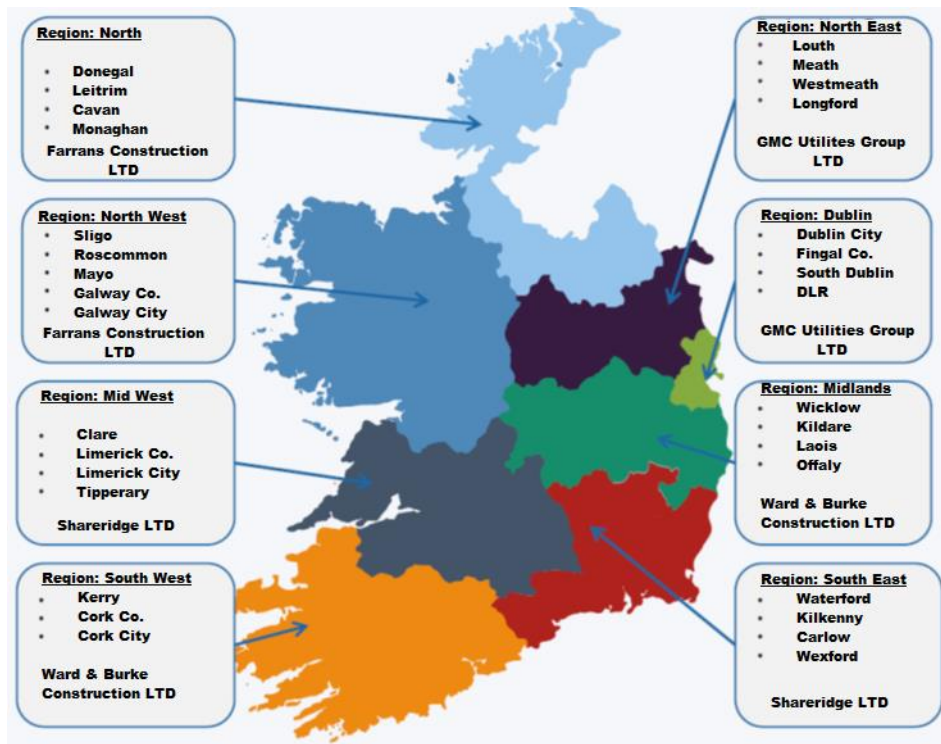
The National Leakage Reduction Programme (LRP), which targets resources at areas of highest leakage and lowest headroom across water networks, is responsible for delivering on UÉ's RC3 commitments. The overall aim is to reduce leakage on a national scale to economically sustainable levels, leading to improved water network performance and reliability. The LRP and associated works will ensure a clean, safe, and reliable public water supply now and into the future to support our growing population and economy.

¹ Since 1st January 2023, Irish Water is known as Uisce Éireann, a standalone, regulated, national authority for water services.

² The PA Framework is designed to assess UÉ's overall performance in delivering defined services to its customers for the money it is allowed to spend by the CRU. See [here](#) for further information on UÉ's reporting under the PA Framework.

³ Please see UÉ's PA 2021 annual data report for more information on the methodology for calculating net leakage at www.cru.ie

To support delivery of the LRP, UÉ has sub-divided the country into eight regions and is working in partnership with local authorities and regional contractors to plan and complete activities. Details of the LRP regions and contractors are provided below.



The scope of the works included in the LRP includes undertaking improvements under the following seven principal work streams:

(i) DMA (District Metering Area) Works

This involves the configuring the network to group premises in a suitable geographic area and the installation of a district meter to monitor the DMA water usage. Additional works to control and monitor the water entering and exiting the DMA are also complete as part of this workstream.

(ii) Find & Fix

The Find & Fix scheme involves leak detection crews undertaking surveys using multiple technologies, including sounding equipment, to locate leaks on pavements and other public areas. If a public side leak is identified, UÉ will carry out the necessary repairs.

(iii) First Fix Free

The First Fix Free scheme offers free leak investigations and free repairs for qualifying properties where a constant flow of water is found on the external water supply pipe. UÉ estimates that over 192 million litres of water per day have been saved as a result of this scheme to the end of H1 2022 including, 13.81 million litres per day saved in H1 2022. Further information on the First Fix Free scheme can be found at <https://www.water.ie/water-supply/first-fix/>.

(iv) Mains Renewal including Shared & Backyard Services

Water mains renewal works usually include the replacement or renewal of ageing public water mains to improve water quality and supply, thus, reducing the number of interruptions to customer supply. As our water pipes are underground, we need to dig down to inspect the pipes and carry out any necessary repairs or replacements.

A shared service connection means that two or more properties are fed by a single water pipe. These connections pipes are often made of iron or lead and prone to leaks.

In some older properties water connections may be installed to the back of the property and run through customer's back gardens. These connections are prone to leaks and can cause reduced levels of service and poor water pressure.

(v) Lead Services

Lead in drinking water is a recognised health concern. We will be investigating the pipes that connect individual properties to the public water mains and replacing any lead pipes with new plastic pipes.

(vi) Non-Domestic Metering

UÉ is replacing old non-domestic meters installed by the Local Authorities with new meters that have Automatic Meter Reading technology. The new meters allow for more accurate and timely billing for customers and better identification of leakage on non-domestic customer sites.

(vii) Pressure Management

Pressure management works are required to improve the quality and security of water supply to customers. The aim of these works is to reduce leakage within the mains network and to ensure a consistent supply of water to all customers. Too much pressure in the network can result in burst pipes and leakage. This can then result in a low water supply pressure for customers at the tap.

2. Overview of the First Fix Free Scheme

In May 2014 the Government announced funding of €51m for a scheme to address water leakage on pipework within customer properties under a “First Fix” scheme. Following a public consultation in August 2015 the Commission for Regulation of Utilities (CRU) approved UÉ’s proposed First Fix Leak Repair Scheme. The First Fix Leak Repair scheme was mobilised under the national Domestic Metering Programme. In its RC3 determination⁴ the CRU outlines its ongoing support for the First Fix Leak Repair scheme. On 19th April 2021, following a public consultation, the CRU published a decision to expand the eligibility criteria for the First Fix Scheme.

Under the First Fix Leak Repair scheme, UÉ assists customers by notifying them where suspected leakage is occurring within the boundary of their property. Eligible Customers who have a leak on the external supply pipe serving a property are offered a free leak repair. The First Fix Leak Repair scheme does not apply to leaks within a dwelling.

While it not essential for a property to be metered to avail of the First Fix Leak Repair scheme, utilising meter read data to identify the most significant leaks has proven key to operating the First Fix Leak Repair scheme efficiently. Prior to the introduction of the First Fix Leak Repair scheme, leakage programmes had been based around time-consuming and labour-intensive sampling of areas to try to detect anomalies on pipework. The UÉ domestic metering programme has provided both the platform and the technology-based solution to address this challenge. Data obtained from meter reading information highlights unusual water usage patterns and allows UÉ to isolate the source of leaks to a particular property, thereby reducing the time required for leak investigation. The technology used for monitoring water flow developed further during the initial years of the operation of the First Fix Leak Repair Scheme. Since the CRU’s decision to expand the eligibility criteria of the Scheme was published in April 2021, UÉ has used alternative methods to measure water flow for unmetered properties. These methods include identifying high water usage through District Metered Areas (DMAs) analysis⁵, Step-Testing⁶ and analysis of nightline⁷. This means that UÉ now has means to detect leakage where the customer does not have a meter.

Given the need to prioritise water conservation & capital expenditure, UÉ prioritises repairs under the First Fix Leak Repair scheme by size, based on the estimated volume of water lost. A constant flow of water, (that is 6 litres per hour over a 48-hour

⁴ Published on 5 December 2019 and available at www.cru.ie

⁵ A district metered area (DMA) is a discrete area of a water distribution network. DMA’s allow Uisce Éireann to closely monitor flow and pressures through its telemetry system. DMAs vary in size and depend on the nature of the water supply scheme and can differ between urban and rural areas. Typically, it is in the region of about 2,000 properties.

⁶ Step Testing facilitates the monitoring the flow of water and pinpointing leaks.

⁷ Analysis of data collected from night-time flow measurements for unexpected increases in water consumption that might suggest a leak.

period), will trigger a constant flow alarm (CFA) on the meter, indicating a potential leak. The largest leaks wasting the most water are priorities to be fixed first.

By H1 2022, it is estimated that over 192 million litres of water per day have been saved as a result of First Fix repairs.

3. How to avail of the scheme

Customers can avail of the scheme, once they are aware of a leak on their property. A CFA alarm is triggered where a constant flow of water to the property is identified (6 litres per hour over a 48-hour period). When a CFA alarm is recorded, customers are issued with a letter from UÉ, indicating a potential leak on their property.

Customers with a visible leak on their property can also contact UÉ to avail of a free leak investigation.

As a result of the changes in criteria made by the CRU in its decision of April 2021, the following customers were brought within the scope of the First Fix Leak Repair Scheme:

- Unmetered domestic Customers;
- Customers with properties without an ISV;
- Customers with properties with a suspected shared or backyard services;
- Some mixed-use customers⁸, and
- Customers that are not registered with UÉ.

Eligibility criteria and the process for availing of the scheme are outlined on the UÉ website⁹. A handy infographic outlining the customer journey is also available on the UÉ website.¹⁰

⁸ See section 3 of the CRU's First Fix Scheme Policy Decision, April 2021 [here](#)

⁹ See UÉ website [here](#).

¹⁰ See UÉ website [here](#).

4. Initiatives to increase Customer Engagement Levels

Following the completion of the First Fix Scheme under the Metering Programme in February 2017, UÉ analysed engagement levels to establish initiatives to improve the First Fix process and increase productivity.

The First Fix scheme was initially relying on the following to achieve water reduction:

- The First Fix letter reaching its desired destination to inform the customer of the possible leak;
- The customer engaging with UÉ to arrange a leak investigation, and
- The customer returning the signed waiver allowing UÉ to repair the leak on their property.

The following changes have been implemented to increase customer engagement levels:

First Fix Letter

In order to increase uptake of the scheme, UÉ pursued the following initiatives:

- UÉ sent 4,992 First Fix letters to properties with a constant flow alarm (CFA) in H2 2021. Letters were issued to properties with a constant flow alarm plus usage **in excess of 1,000 litres per day**. Targeting customers above this level for the First Fix scheme is an attempt to engage customers in properties that are using over twice the national average usage. (365 litres per property per day).
- The average daily usage of the property and the expected daily usage of 133 litres¹¹ per person per day were included on the notification letter. This informs the customer of the quantity of excess usage at their property and will encourage the customer to engage with us to arrange a leak investigation.
- In order to improve customer engagement, UÉ improved the information it provided customers on the CFA notification letters (for example, by equating the number of litres used at the premises to the equivalent average usage by a person).

¹¹ UÉ currently calculates the average water use of one person at 133 litres per day (see [here](#) for more information).

Waiver Return Process

Under the metering programme, waivers were posted to customers that qualified for a leak repair following the investigation. The customer was required to sign the waiver and post it back to UÉ. It was found that there was a delay in customers returning the waivers and in some cases the waiver was not returned.

Under the leakage reduction programme this process has been amended to increase the return of the signed waivers:

- Upon completion of the Leak Investigation, the crew issue the waiver to the customer and answer any questions the customer may have. If the customer is willing to sign the waiver at the time, the crew will return the signed waiver to UÉ, and a repair can be scheduled. They will also leave a copy of the waiver with the customer for their own reference.
- If the customer is not willing to sign the waiver at this time, the crew will issue the waiver and a pre-paid envelope to the customer in the hope the customer will sign the waiver and post it back to UÉ.

UÉ is also encouraging our contractors to be proactive and contact customers that have received a first fix letter but have not engaged with the scheme.

5. First Fix Update

In H1 2022, a significant number of large leaks, identified as properties with usage in excess of 1,000 litres per day, appeared on the CFA list. When contacting customers, UÉ start with the largest users (properties with usage in excess of 5,000 litres per day). It was found that 3,990 properties were using more than 5,000 litres per day based on meter readings and were accountable for over 42 million litres of Potential Leakage (PL)¹² per day (47%).

Targeting these users first will result in greater savings from fewer repairs and reduce the PL more effectively. The remaining 32,578 properties using less than 5,000 litres per day but greater than 1,000 litres per day accounted for over 47 million litres of PL per day (53%). The following table is calculated using information from the CFA list and is based on the assumption that an average household consumes 365 litres of water per day.

Item	QTY of Leaks	Average usage (Litres/day)	Total Usage (Litres/day)	Expected Usage (Litres/day)	PL (Litres/day)	% of PL
>5 000 Litres	3,990	11,024	43,984,110	1,364,580	42,619,530	47%
1,000 - 5 000 Litres	32,578	1,812	59,021,480	11,141,676	47,879,804	53%
Total	36,568	2,817	103,005,590	12,506,256	90,499,334	100%

Table 1: Potential Leakage (PL) summary H1 2022 (Usage > 1,000 Litres per day)

¹² Potential Leakage represents the difference between the total usage of this cohort of largest users and their expected usage.

6. Reporting on the scheme

In April 2015, the CRU published a decision on UÉ's proposed First Fix Leak Repair Scheme for Domestic Water Customers. Among its recommendations, the CRU expects UÉ to strongly promote the scheme in order to increase customer awareness and to encourage customers to engage with UÉ on the scheme.

The CRU is monitoring the ongoing implementation of the scheme to ensure that the costs allowed are efficiently incurred and that benefits are achieved for customers. In line with the CRU's updated 2021 First Fix Scheme Policy Decision, UÉ's performance in the First Fix Scheme will now be reported on a six-monthly basis to the CRU¹³. UÉ previously reported performance on a quarterly basis¹⁴. The CRU's 2021 policy decision, published in late April, expanded the eligibility criteria to the First Fix Scheme and associated figures are now included in the overall reported totals. Section 6.1 summarises scheme progress during H1 2022.

6.1 Six Month Summary

H1 2022 data for the key First Fix Scheme metrics is outlined below.

- **Customer Response Rates and Engagement Levels**

A total of 9,375 customers engaged with the scheme in H1 2022:

6,920 Customers requested a free leak investigation survey

2,455 Customer repairs completed from data collected from the meter

- **Leak Investigations**

A total of 6,920 investigations were requested including repeat visits where homes without an ISV and homes served through a shared or backyard service (now eligible for the scheme).

UÉ contacts customers within 10 business days to arrange a convenient time for an appointment to carry out the free leak investigation at a property. A total of 5,672 leak investigations were undertaken in H1 2022. This figure includes some investigations

¹³ See section 4.3 of the CRU's First Fix Scheme Policy Decision, April 2021 [here](#)

¹⁴ See UÉ's First Fix reports from Q3 2015 to Q2 2020 [here](#)

that were requested in H2 2021; similarly, some investigations requested in H1 2022 will be carried out in H2 2022.

From the 5,672 completed leak investigations, 1,780 leaks on external supply pipes were identified as qualifying and these customers were offered a free leak repair under the scheme. The remaining 3,892 non-qualifying leaks are broken down as follows:

- 1) The investigations identified 1,918 internal plumbing and other issues, which come under the remit of the homeowner. As with all internal repair and maintenance in a customer's home, if a leak is confirmed internal to the house, then it should be repaired by the homeowner.
- 2) The remaining 1,974 properties were identified as having leaks either on the public side, inaccessible leaks or otherwise out of the scope of the First Fix for Free Scheme.

- **Leak Repairs**

Customers are asked to review the terms and conditions of the leak repair offer and sign the offer documentation after which UÉ will contact the customer to schedule the leak repair at a suitable time. On receipt of the documentation, UÉ contacts customers within 10 working days to arrange a convenient time for an appointment to carry out the free leak repair at a property.

During H1 2022, UÉ completed 1,567 free leak repairs under the First Fix Leak Repair scheme. This figure includes some leaks that were detected in H2 2021 and repaired in H1 2022; similarly, some leaks detected in H1 2022 will be repaired in H2 2022.

- **Customer Repairs**

From the data collected through meter reading we know that 2,455 customers have repaired leaks on their property themselves after receiving a constant flow advice letter. UÉ would like to thank all customers who repaired leaks on their property. These repairs have made a significant contribution to national water conservation.

- **Gross Water Savings**

All references below to water savings are gross. The issuance of constant flow advice letters has targeted the largest leaks first and the result of this can be seen from the estimated incremental savings of 8.77 million litres of water per day achieved in H1 2022 from contractor repairs and a further 5.04 million litres from customer repairs. First Fix repair savings recorded in H1 2022 (8.77 million litres of water per day) were higher than any six monthly period since reporting commenced in H1 2018.

Table 2 estimates water savings from the First Fix Scheme and Customer Repairs since 2018. Previous reports estimated the savings from Q1 2018 to Q2 2020 on a quarterly basis. To facilitate comparison with H2 2020, table 2 now shows half-yearly estimate water savings since 2018¹⁵.

Period	UÉ First Fix Repair		Customer Repairs		Total Repairs	
	Repairs #	Savings (ML/Day)	Repairs #	Savings (ML/Day)	Total Savings (ML/Day)	
2018					2018 Annual Cumulative	
H1	1,653	8.01	1,986	5.27	3,639	13.28
H2	2,512	8.25	1,151	1.58	3,663	9.93
2019					2019 Annual Cumulative	
H1	2,819	7.67	1,252	3.83	4,071	11.5
H2	1,392	3.3	301	1.41	1,693	4.71
2020					2020 Annual Cumulative	
H1	952	2.01	159	0.7	1,111	2.71
H2	1,453	5.34	488	1.34	1,941	6.68
2021					2021 Annual Cumulative	

¹⁵ Please see table 2 in the Q2 2020 report ([here](#)) for estimated water savings since 2018 reported on a quarterly basis

H1	1,091	3.84	235	0.88	1,326	4.72
H2	1,317	7.99	356	1.65	1,673	9.64
2022					2022 Annual Cumulative	
H1	1,567	8.77	2,455	5.04	4,022	13.81
Total	14,756	55.18	8,383	21.70	23,139	76.88

Table 2: Estimated water savings from the First Fix Scheme and Customer Repairs (2018 to 2022)

By H1 2022, total cumulative water savings are estimated at 192.47 ML per day. A cumulative estimated total of 108.64 million litres per day has been saved through First Fix repairs and a further estimated 83.83 million litres per day saved from customer repairs. Savings are calculated from a comparison of meter data collected prior to and after the repair work being undertaken. For unmetered properties a meter is installed before the repair, if agreeable to the customer, or a temporary flow monitoring device can be used to record the savings associated with the leak repair. For customer repairs, the constant flow alert is no longer active, and the meter data shows a supporting drop in water usage over the next two read periods. Finally, we exclude those with less than 1000l/d as it is suspected that below this level usage has been reduced rather than an actual customer leak repair.

7. Project Expenditure

The project expenditure is reported half-yearly. Table 3 sets out the total project expenditure for H1 2022.

Time Period	Investigations	Repairs	Additional Costs	Total
H1 2022	€1,943,053.33	€ 1,585,225.42	€ 103,890.38	€3,632,169.13
RC3 (2020 - H1 2022)	€7,451,761	€7,149,050	€153,502	€14,754,313
2015 - H1 2022	€30,322,059	€24,905,864	€4,453,497	€59,681,420

Table 3: Total expenditure on the First Fix Leak Repair Scheme to date.

Note, some costs incurred in a six month period may not be captured until the following six month period figures.

8. Next Steps

UÉ will continue to implement the First Fix Leak Repair scheme through the LRP. The next report will be issued to the CRU in Q4 2023 and will cover H2 2022.

Appendix 1 - H1 2022 First Fix Summary Numbers

1	Number of Continuous Flow Alarms Detected	Total	H1 2022	
			76,734	
2	Number of Customer Notifications Issued	Period	H1 2022	Cumulative FF Scheme Total
		Region		
		North	327	
		North West	1,239	
		South East	746	
		South West	1,760	
		Dublin	2,637	
			207,397	

		North East	1,448	
		Midlands	1,940	
		Midwest	903	
		Grand Total	11,000	
11,000 constant flow advice letters were issued in H1 2022.				
3	Customer Responses requesting a Free Leak Investigation	Period	H1 2022	Cumulative FF Scheme Total
		Region		
		North	703	
		North West	839	
		South East	915	
		South West	1,333	
		Dublin	1,124	
		North East	503	
		Midlands	661	
		Midwest	842	
		Grand Total	6,920	
6,920 customers requested a First Fix Free Leak Investigation				
4	Leak Investigations Completed	Period	H1 2022	Cumulative FF Scheme Total
		Region		
		North	533	
		North West	495	
		South East	976	
		South West	1043	
		Dublin	654	
		North East	345	
		Midlands	592	
		Midwest	1,034	
		Grand Total	5,672	
5,672 Leak Investigations were carried out in H1 2022 by LRP contractors.				

4a	Leak Repairs Created	Period	H1 2022	Cumulative FF Scheme Total
		Region		
		North	160	
		North West	332	
		South East	136	
		South West	281	
		Dublin	297	
		North East	74	
		Midlands	254	
		Midwest	191	
		Grand Total	1,725	
1,725 Leak Repairs were created in H1 2022				

5	Leak Repairs Completed	Period	H1 2022	Cumulative FF Scheme Total	
		Region			
		North	31	23,574	
		North West	287		
		South East	169		
		South West	273		
		Dublin	323		
		North East	80		
		Midlands	209		
		Midwest	195		
		Grand Total	1,567		
		1,567 confirmed Leak Repairs carried out in H1 2022			
6	Estimated Water Savings from First Fix Repairs (Litres/day)	Period	H1 2022		Cumulative FF Scheme Total
		Region			
		North	110,424	108.64 ML	
		North West	1,180,507		
		South East	681,389		
		South West	1,965,158		
		Dublin	2,493,120		
		North East	674,188		
		Midlands	1,006,956		
		Midwest	656,143		
		Grand Total	8,767,885		
		It is estimated that 8.77 ML per day of water was saved in H1 as a result of repairs carried out by the contractor. This brings the total incremental Water Savings to 108.64 ML from contractor repairs and an overall saving of 192.47 ML per day.			

7	Customer Repairs Completed	Period	H1 2022	Cumulative FF Scheme Total
		Region		
		North	110	
		North West	251	
		South East	436	
		South West	359	
		Dublin	399	
		North East	331	
		Midlands	283	
		Midwest	286	
		Grand Total	2,455	
		Customer repairs represent the repairs carried out by the customer after receiving a First Fix Free letter from UÉ. 2,455 customers repaired leaks in H1 2022.		
8	Estimated Savings from Customer Repairs (Litres/day)	Period	H2 2021	Cumulative FF Scheme Total
		Region		
		North	270,053	
		North West	565,970	
		South East	793,801	
		South West	816,686	
		Dublin	755,609	
		North East	880,809	
		Midlands	440,426	
		Midwest	518,108	
		Grand Total	5,041,461	
		It is estimated that 5.04 ML of water per day was saved in H1 as a result of Repairs carried out by the customer. This brings the total cumulative Water Savings to 83.83 ML from customer repairs and an overall saving of 192.47 ML per day.		
9	Counties in Each Region	North	Donegal, Cavan, Monaghan, Leitrim	
		North West	Galway, Galway City, Mayo, Sligo, Roscommon	
		South East	Carlow, Waterford, Waterford City, Kilkenny, Wexford	
		South West	Cork, Cork City, Kerry	
		Dublin	Dublin City, South Dublin, Dun Laoghaire Rathdown, Fingal	
		North East	Longford, Louth, Meath, Westmeath	
		Midlands	Kildare, Offaly, Laois, Wicklow	
		Midwest	Limerick, Clare, Tipperary	

Note: All cumulative totals outlined in table 3 are for the First Fix Scheme from commencement to the end of H1 2022.

Note: Meter read data is used to confirm that a customer repair has been carried out. Number of customer repairs and estimated savings will be included in the report once two confirmed meter readings are collected after the repair date. As such, the number of customer repairs noted above for each quarter is expected to increase in the next report as more confirmed readings are collected.