

RURAL WATER SECTOR AND THE IMPACT OF CLIMATE CHANGE

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AGENDA

1. Background to NFGWS and GWS Sector
2. Journey so far
3. Impact of Climate Change on GWS Sector
4. Water Demand Management
5. Energy Consumption
6. Building Climate Resilience
7. Source protection
8. Biodiversity Enhancement
9. Community Awareness

NFGWS AND GWS SECTOR

- The NFGWS is the representative and advisory organisation for the community-owned GWS sector in Ireland, established in 1998
- The NFGWS works in partnership with Group Water Schemes and different government departments, LAs and non-state stakeholders
- The NFGWS provides advice, mentoring and training to ensure highest possible standards, in terms of water quality and customer service is delivered by our GWS members
- Over 420 GWS affiliate nationally with NFGWS
- GWS supply water potable water to over 80,000 homes across Ireland



JOURNEY SO FAR

The NFGWS 5-year Strategic Plan was launched in 2019

Drinking Water Quality remains the No.1 priority

New strategic objectives were introduced, focusing on Climate Action, Biodiversity Enhancement and Source Protection

Additional funding support provided by the DHLGH to the NFGWS in 2021

Framework documents for each of these areas have been published and released

GWS sector can play a unique role in each of these areas



IMPACT OF CLIMATE CHANGE ON GWS SECTOR

- Raw water sources are impacted by extreme weather events resulting in water quality variation (colour, turbidity, algae, nitrate, manganese, bacteriological)
- This can lead to increased pressure on treatment systems
- Disruption to water supply due to loss of power
- Harsher weather events in summer and winter impact GWS day-to-day tasks
- Reduction in supply levels as a result of more frequent drought events



WATER DEMAND MANAGEMENT

- NFGWS working with GWS to quantify their 'legitimate demand'
- Aim to have Unaccounted for Water (UFW) level as low as possible
- 20% UFW is the target which we are aiming to have every GWS reach
- Reducing wastage has a big impact both financially and in terms of reducing the GWS carbon footprint
- Bulk meters fitted across the network with universal metering on every connection
- Many GWS have installed telemetry on bulk meters and are mapping their distribution networks

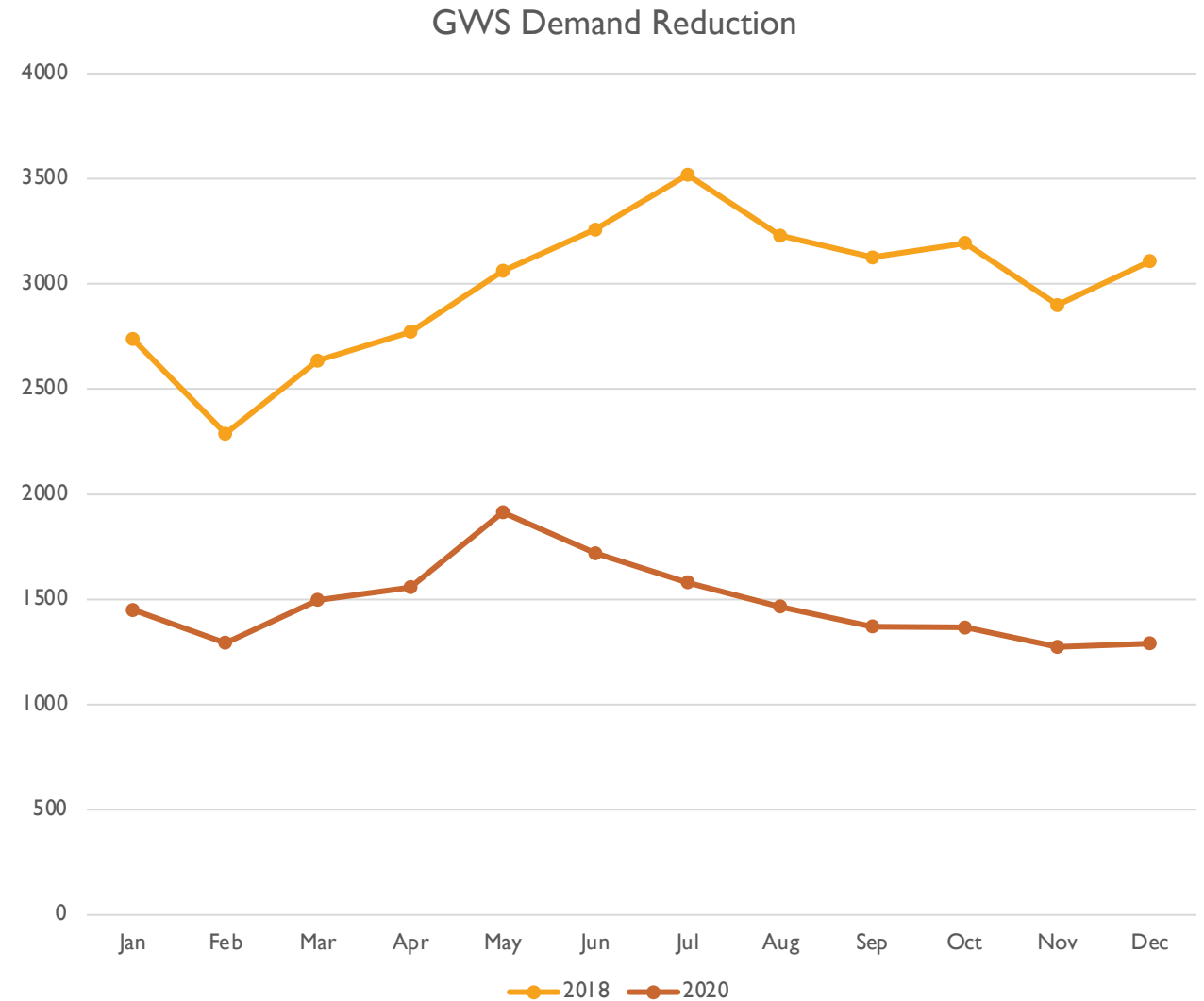


Source English Drummullen GWS

EXAMPLE (A) OF GWS DEMAND REDUCTION

WEXFORD GWS

- In a 2-year period GWS has seen a reduction, in their overall demand, of over 18,000m³/annum
- Achieved by the appointment of a manager to the GWS, as well as reading the meters and responding to leaks in a timely manner



EXAMPLE (B) OF GWS DEMAND REDUCTION LIMERICK GWS

- Demand was extremely high on the scheme and leakage was posing a big problem.
- **95%** of the leaks were on the mains and cost the scheme as much as **€800/day**.
- District metered areas were established as a first step to identify and target areas for improvement.
- Pressure reducing valves (PRVs) were then installed.
- With savings from the pressure management the scheme had additional financial resources to replace all leaking collars on the network.
- GWS saw an overall demand reduction of **102,830m³** over a 4-year period and a financial saving of **€14,000**

Water Demand Reduction

2015	2019
226,830m ³	124,000m ³

Operational Cost Reduction

2015	2019
€31,000	€17,000

ENERGY CONSUMPTION

- Electricity is a significant operational expense for GWS
- 10 GWS nationally to date have had energy audits completed on their pumphouse to identify efficiency improvements in pumping and treatment facilities
- NFGWS plans to increase this number significantly during 2022 and beyond
- More efficient pumps and pumping regimes have been identified as cost and energy saving measure, in addition to the installation of different forms of renewable energy





POLECATS GWS - SOLAR PANELS

BLACKSTAIRS GWS - PAT

Blackstairs GWS is the largest GWS in Leinster supplying potable water to over 1,200 connections

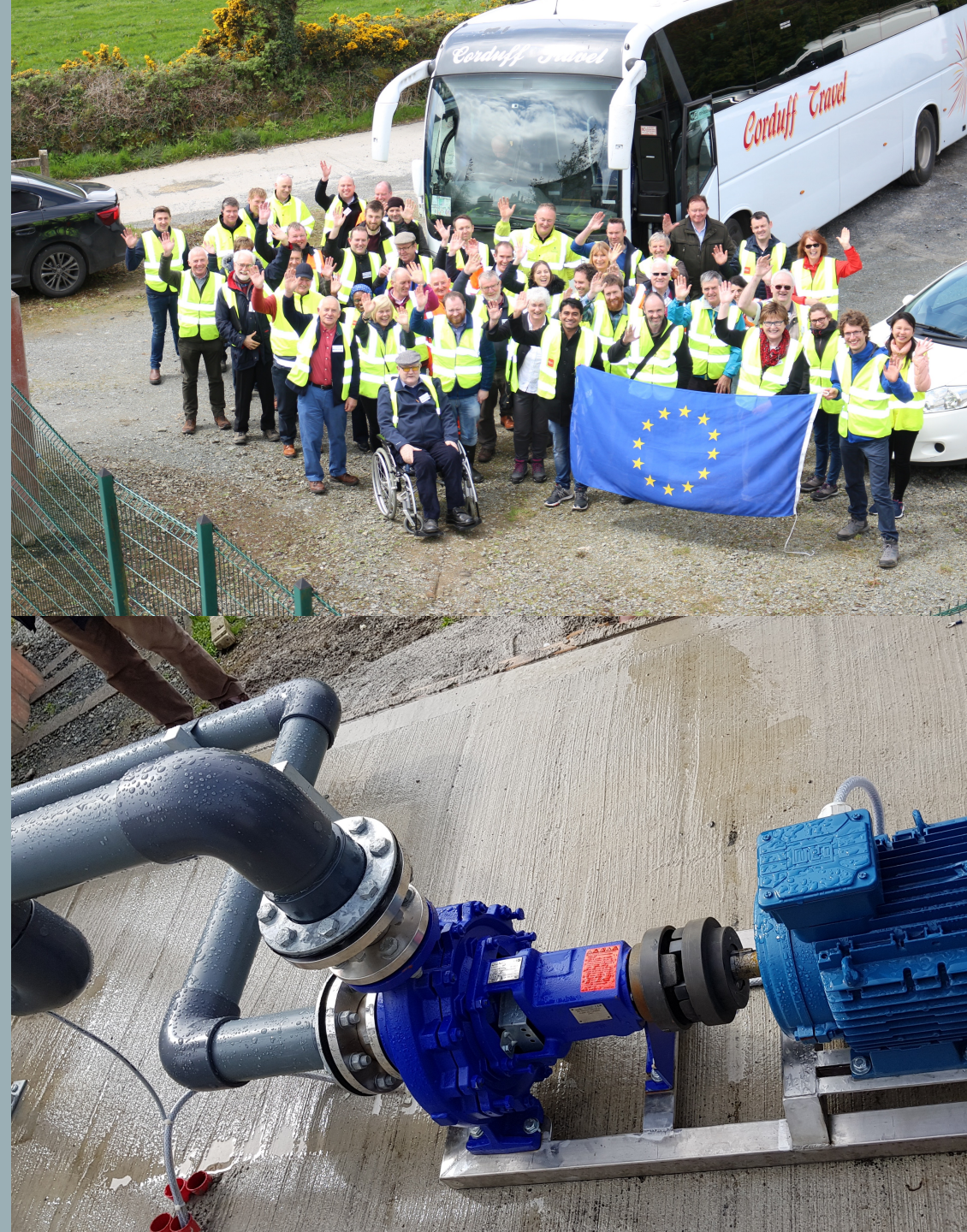
Surface water fed scheme with the supply coming from the Blackstairs mountains

GWS took part in a TCD EU Funded project – DWR Uisce

PAT – Pump as Turbine was installed on their intake, where excess energy is taken, from the source, as it enters the treatment plant

The project was officially launched in May 2019

Blackstairs GWS now acts as European demonstrator site for this technology



BLACKSTAIRS GWS - PAT

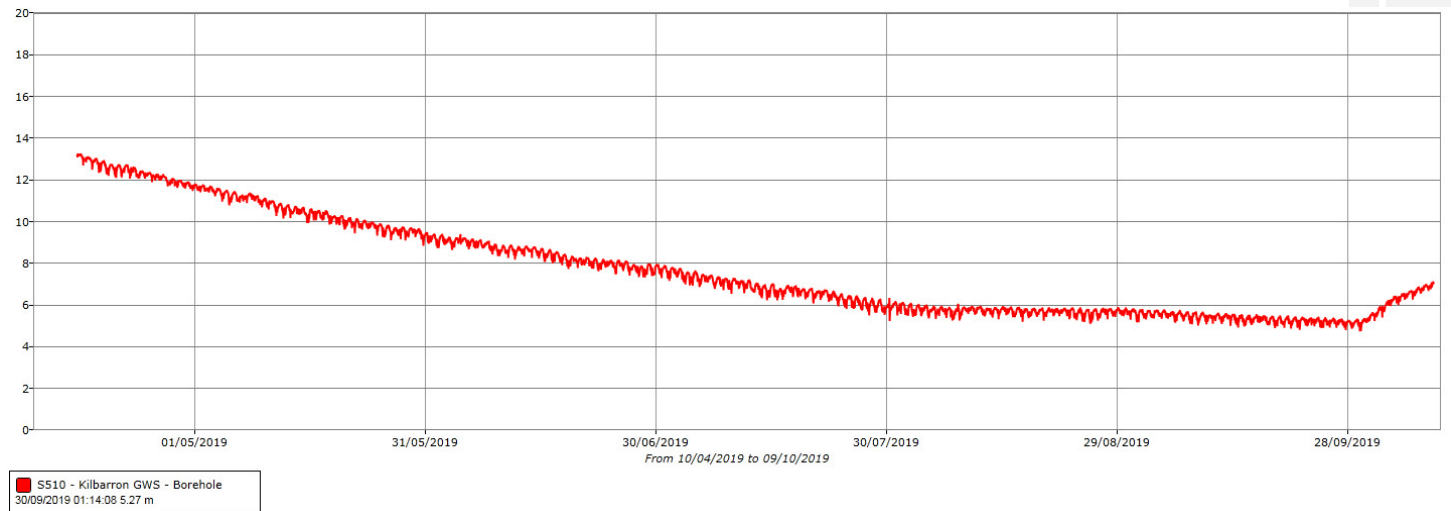
Since PAT came into production in Nov 2019 and up to Aug 2021—
20,291kWh of electricity was generated

This electricity generation has been used to offset their energy consumption from the national grid

2020 PAT Energy Production	
Jan-20	1,901kWh
Feb-20	1,698kWh
Mar-20	2,063kWh
Apr-20	1,993kWh
May-20	449kWh
Jun-20	301kWh
Jul-20	497kWh
Aug-20	975kWh
Sep-20	1,056kWh
Oct-20	789kWh
Nov-20	469kWh
Dec-20	498kWh
	12,689kWh

BUILDING CLIMATE RESILIENCE

- GWS to understand their source
 - Routine raw water sampling
 - Installation of source level sensors
- Vulnerability to extreme weather events
 - Back-up generators
 - Weather stations
- Working with neighbouring GWS
 - Increased rationalisation and amalgamation efforts



SOURCE PROTECTION

- All regulated GWS nationally now have their source catchments delineated - Phase 1
- Source protection pilot projects were implemented on 9 GWS – funding support provided by the DHLGH and DAFM
- ‘Let it Bee’ & ‘I’ve planted a tree’ initiatives
- Source protection Phase 2 – Integrated Source Protection Plans (ISPP) – 2021 14 GWS agreed to take part
- Phase 2 will be finalised before the end of Q3 2022, and learning will be implemented for all future GWS over the coming years



- NFGWS has signed up to the All – Ireland pollinator plan – encouraging all GWS to do the same
- Pollinator friendly management of GWS sites
 - Booklet published by the NFGWS in conjunction with the national Biodiversity Centre
 - Provides guidance on the management of GWS sites & services
 - Pollinator friendly practises with source protection co-benefit
 - Ending use of pesticides and herbicides – strongly encouraged

BIODIVERSITY



GWS committees are well respected within their local community

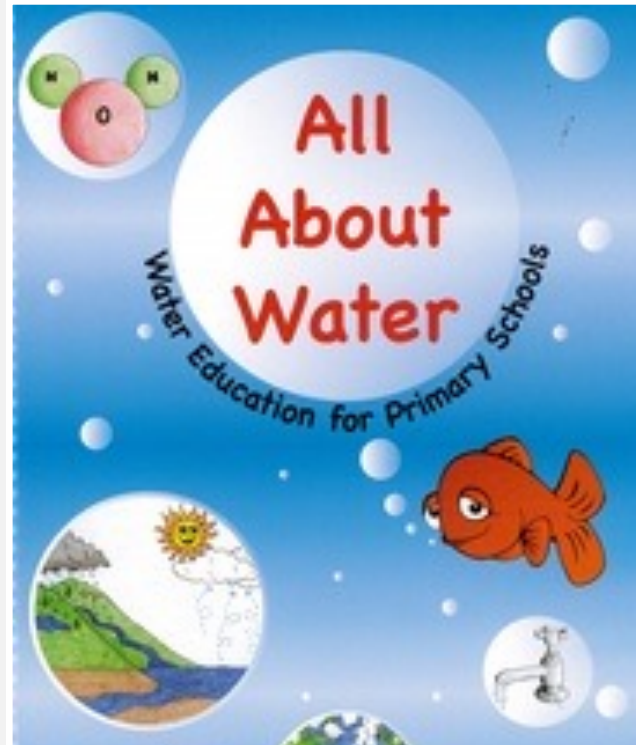
GWS sector is uniquely placed to be the vectors for change

Engaging with local groups such as tidy towns, angling and farming groups is essential

Education

- NFGWS primary school curriculum targeted at 4th- 6th class students
- Over 200 primary schools connected to GWS across the country – curriculum has been provided to all of these schools free of charge
- Has been adapted to include climate action, source protection and biodiversity enhancement material

COMMUNITY ENGAGEMENT



THANK YOU

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