



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



Dŵr Uisce

Energy Recovery in Water Services
Adennill Ynni yn y Diwydiant Dŵr

Dŵr Uisce Annual Conference 2018

Water & Energy Innovation

23rd October





Introduction to Dŵr Uisce

- Significant scope to improve the energy efficiency of the distribution of water resources.
- The Dŵr Uisce project aims to quantify and demonstrate this scope using:
 1. Smart and low-carbon technology.
 2. Cross-sectoral & cross-border benchmarking, and economical and environmental impact assessment
 3. Networking, dissemination, knowledge exchange, brokerage events, demonstrations.
- The project will deliver improved efficiency of the water-energy nexus, benefitting two key stakeholder groups: **water suppliers** and **water consumers**

Project themes:

WE TAKE WATER FOR GRANTED...
IT'S A **RESOURCE**

1.4bn JOBS DEPEND ON WATER

- AGRICULTURE
- INDUSTRY
- SERVICES

MEGA TREND

WATER +100% DEMAND
ENERGY +50%
FOOD +35%

WE WANT TO RAISE AWARENESS of the VALUE of WATER

Benefit BOTH!

WATER SUPPLIERS (Smart Specialisation Cluster)
WATER USERS

IMPROVE Energy EFFICIENCY

DISTRIBUTION WATER RESOURCES

Heat Loss, Vapour Pressure & Flow, LEAKAGE

DRAIN WATER HEAT RECOVERY

Highlight **LOST ENERGY**

Heat Storage, Heat Exchange Unit, Heat Exchanger Tank, Warm Buildings, Horizontal System

by using **INTEGRATED SMART & Low carbon TECHNOLOGY**

ENVIRONMENTAL IMPACT & CLIMATE CHANGE

Climate Change, ARE WATER COMPANIES PREPARED?

POLICY SUPPORT & GUIDANCE TO HELP CHANGE THE WATER SECTOR!

OUR AIMS: REDUCE ENERGY Consumption, CO₂ EMISSIONS, Cost!

ENERGY AUDITING & RATING

HOW CAN WE BENCHMARK THE WATER SECTOR?

€ / tonne KW
Quantify the IMPACT for POLICY MAKERS

WE NEED TO INNOVATE

IDENTIFY BARRIERS, WE'RE NOT READY!, CONNECT, COMMERCIALISE SOLUTIONS

CO₂ EMISSIONS

80% COST OF ENERGY EXTRACT, TREAT, DISTRIBUTE WATER

TECHNOLOGY IDEAS WHICH COMES FIRST?

EXPAND CAPACITY

WE NEED PILOT SCHEMES, VIABLE BUSINESS PLANS

IT HAS BEEN AROUND FOR A LONG TIME. TURBINES

Micro Power Energy Recovery

STRENGTHEN

THE SYSTEM HAS UNTAPPED POTENTIAL!

Harvesting ENERGY from DIFFERENT SOURCES!

WE'RE NOT JUST A WASTE WATER TREATMENT WORKERS!

WE WANT TO SCALE UP!

WE WANT TO BE CURRENT TOOLS AND HAVE OUR 'SMART' TOOLS!

WE WANT TO SEE "SMART" OVERSOLD.

CHANGING SCENARIO.

THIS IS ALL INVESTMENT!

WE NEED TO HAVE RESILIENCE THROUGH CLIMATE CHANGE.

ENGINEERING TECHNOLOGY

SMART NETWORK CONTROL

energy RECOVERY AND STORAGE

WHERE IS BEST FOR TURBINES?

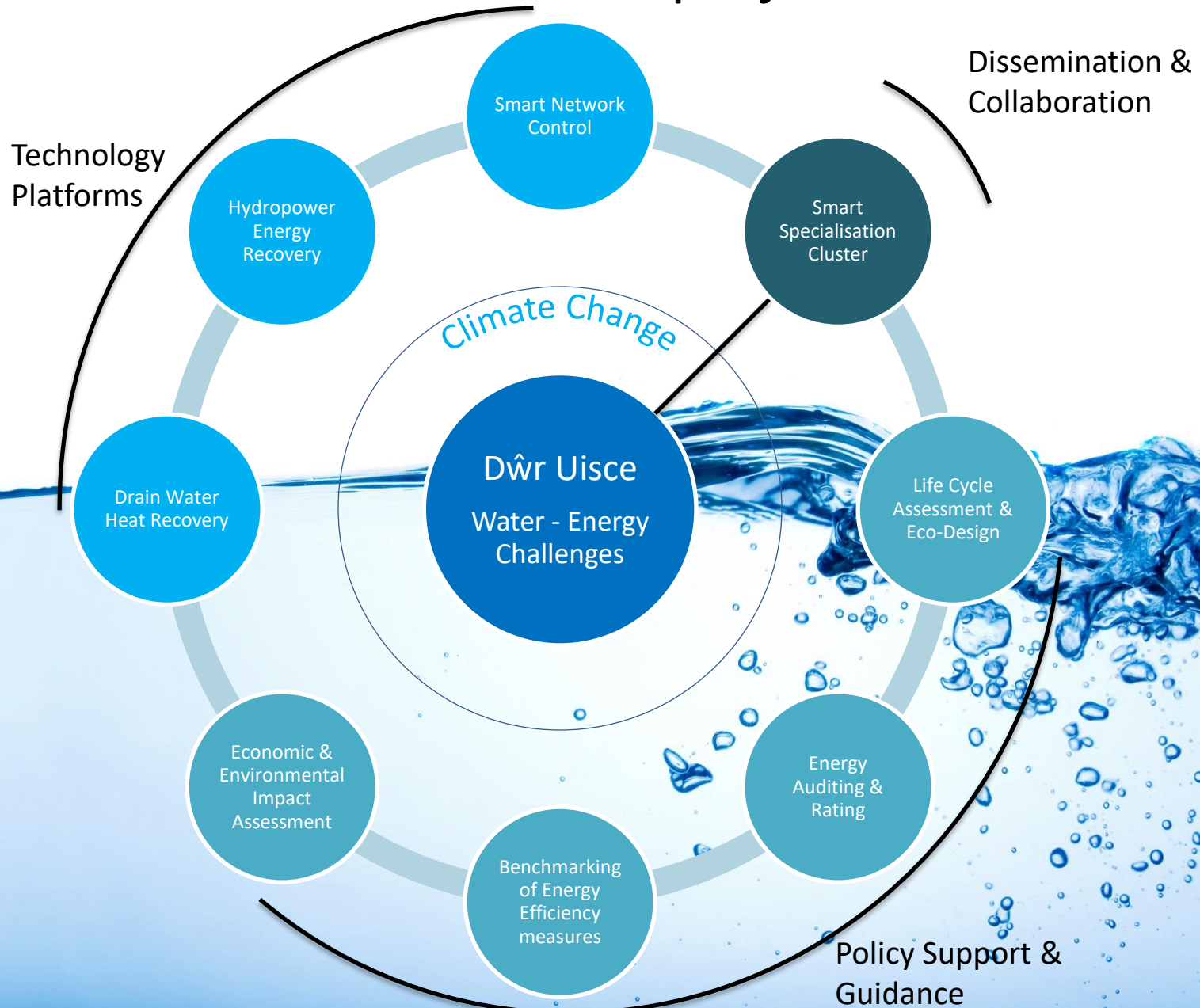
NETWORKING & INNOVATION

enable COLLABORATION!

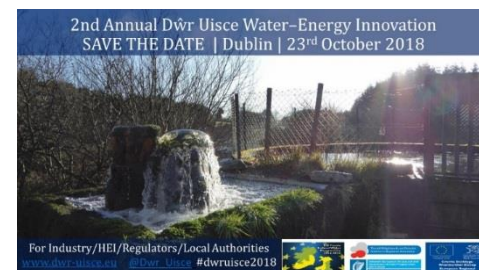
FINE FORDS ENERGY PARK

+ 2 more sites in ISLELAND

The Dât Uisce project



Dŵr Uisce Water-Energy Innovation Conference: *Section Innovation Opportunities.* **09:30 to 11:30 am**

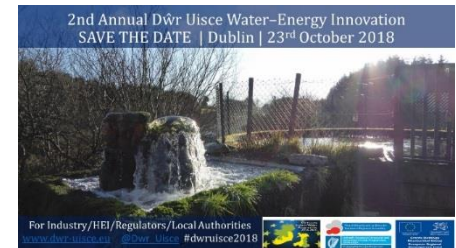


Innovation Opportunities (Chair:
Prysor Williams)

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|---------------|---|
| 09.30 – 09.40 | Aonghus McNabola, Trinity College Dublin. Dŵr Uisce 'Distributing our Water Resources: Utilising Integrated, Smart and low-Carbon Energy'. |
| 09.40 – 10.10 | Paul O'Callaghan, BlueTech Research. (Private Sector). |
| 10.10 – 10.30 | Mike Pedley, "Back to the Future - via the Present: progress and challenges for energy in the UK Water Industry". (Private Sector). |
| 10.30 – 10.40 | Innovation Opportunities– Q&A |
| 10.40 – 11.30 | 2-min Water, Energy and Innovation: Intersectoral pitches. |

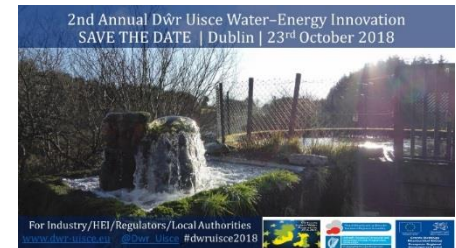
Dŵr Uisce Water-Energy Innovation Conference: *Section Innovation in Practice.*

12:00 to 13:15 pm



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| Innovation in Practice (Chair: Aonghus McNabola) | 12.00 – 12.15 | Triona Collins, “Engaging with the Rural Water Community: I Must Do Something”, Water Services, Tipperary County Council. (Communities Sector). |
| | 12.15– 12.30 | John Durkan, “Doing more with less”. ABP Food Group. (Food Sector). |
| | 12.30 – 12.45 | Benny McDonagh, “Rethinking Energy”, EPS Group. (Energy and Water Treatment Supply Sectors). |
| | 12:45 – 13:00 | John Gallagher & Paul Coughlan, “Innovating for low-carbon energy through hydropower”. Trinity College Dublin. (Conservation Charity Sector). |
| | 13:00 –13:15 | Innovation and Practice – Q&A |

Dŵr Uisce Water-Energy Innovation Conference: *Section Demonstrating Learning.* **14:10 to 15:30 pm**



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|---|---------------|---|
| Demonstrating Learning (Chair: Paul Coughlan) | 14.10 – 14.30 | Dŵr Uisce Hydropower Demonstration sites. “Blackstairs Group Water Scheme, Ireland & Tŷ Mawr Wybrnant, National Trust, Wales”. Daniele Novara, Trinity College Dublin. |
| | 14.30 – 14:50 | Dŵr Uisce Heat Recovery Demonstration sites. “Penrhyn Castle, National Trust, Wales”. Isabel Schestak & Jan Spriet, Bangor University & Trinity College Dublin. |
| | 14.50 –15:10 | Demonstrating Cluster Growth. “Demonstrating learning in action in a water and energy smart specialisation cluster”. Ana de Almeida Kumlien, Trinity College Dublin. |
| | 15.10 – 15:20 | Demonstrating Learning – Q&A |
| | 15.20 – 15.30 | Aonghus McNabola, Dŵr Uisce project, Trinity College Dublin. Closing remarks & call for action. |



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good news!**

