

Interreg



Co-funded by
the European Union

North-West Europe

ResNRJwater

Introduction to the ResNRJwater project - Launch conference Essen, 11 June 2024

Marie-Edith Ploteau, Lippeverband



EGLV

Lippeverband

Content of the presentation

- **Challenge and project objective**
- **Partnership**
- **Work plan overview**

Interreg



Co-funded by
the European Union

North-West Europe

ResNRJwater



Need for a resilient energy supply *versus* unexploited potentials in the water sector

Need for resilient energy supply

- Energy and climate **crisis** in EU
- High energy-consumption of the crucial w&w infrastructures
- Black-out threats

Under-exploited potentials

- Space-consuming w&w infrastructures for renewable **power** generation
- Wwtp-influent and wwtp-effluent for **heat** recovery
- Existing energy flows for improved **energy** management
- Balanced distribution of w&w infrastructures across NWE for **grid** stabilisation

wwtp = wastewater treatment plants

w&w = water and wastewater

Turn the water and wastewater infrastructures into energy hubs

Project objective

An interdisciplinary partnership from (waste)water and energy sectors

9 full-partners organisations



+ 29 associated organisations in an advisory function

Type of organisations

- Waterboards
- Syndicate of municipalities on energy
- Developers of energy plants
- Association of waterboards on energy topic
- Academic partners

9 partners from 6 countries cooperate

- Waterboards: Aquafin, HHNK, EG, LV
- Syndicate of municipalities on energy: Territoire d'Énergie 44
- Developers of energy implementation: BETREM, EnR44
- Association of waterboards on energy topic: InfraWatt
- Academic partner: UGalway



29 associated organisations in an advisory function

Waterboards and water infrastructures providers

- De Vlaamse Waterweg NV (BE)
- Ruhrverband (DE)
- Consorzio Depurazione Acque Chiasso e Ditorni (CH)
- Abwasserverband Morgental (CH)
- Abwasserverband Altenrhein (CH)
- SAUR (FR)
- SINEF AG (CH)
- Vand og Affald (DK)

Energie infrastructures providers

- CNR Compagnie National du Rhône (FR)
- ELIA Transmission (BE)

Regional authorities

- Province NH Province Noord-Holland (NL)
- POM Limburg Provinciale ontwikkelingsmaatschappij Limburg (BE)
- Region PdL Région Pays de la Loire (FR)
- ENEDIS Direction Régionale Pays de la Loire (FR)
- CD72 Département de la Sarthe (FR)

Groups of interest

- EurEau (EU)
- EWA European Water Association (EU)
- BDEW Bundesverband der Energie- und Wasserwirtschaft e.V., Landesgruppe NRW (DE)
- AFPG Association Française des Professionnels de la Géothermie (FR)
- FNCCR Fédération Nationale des Collectivités Concédantes et Régies (FR)
- UVW Unie van Waterschappen (NL)

Cooperatives and assimilated

- RECIT Réseau des Energies Citoyennes en Pays de la Loire (FR)
- Galway Energy Co-operative Ltd. (IE)
- Allmende Emscher Lippe eG (DE)

Environmental agencies

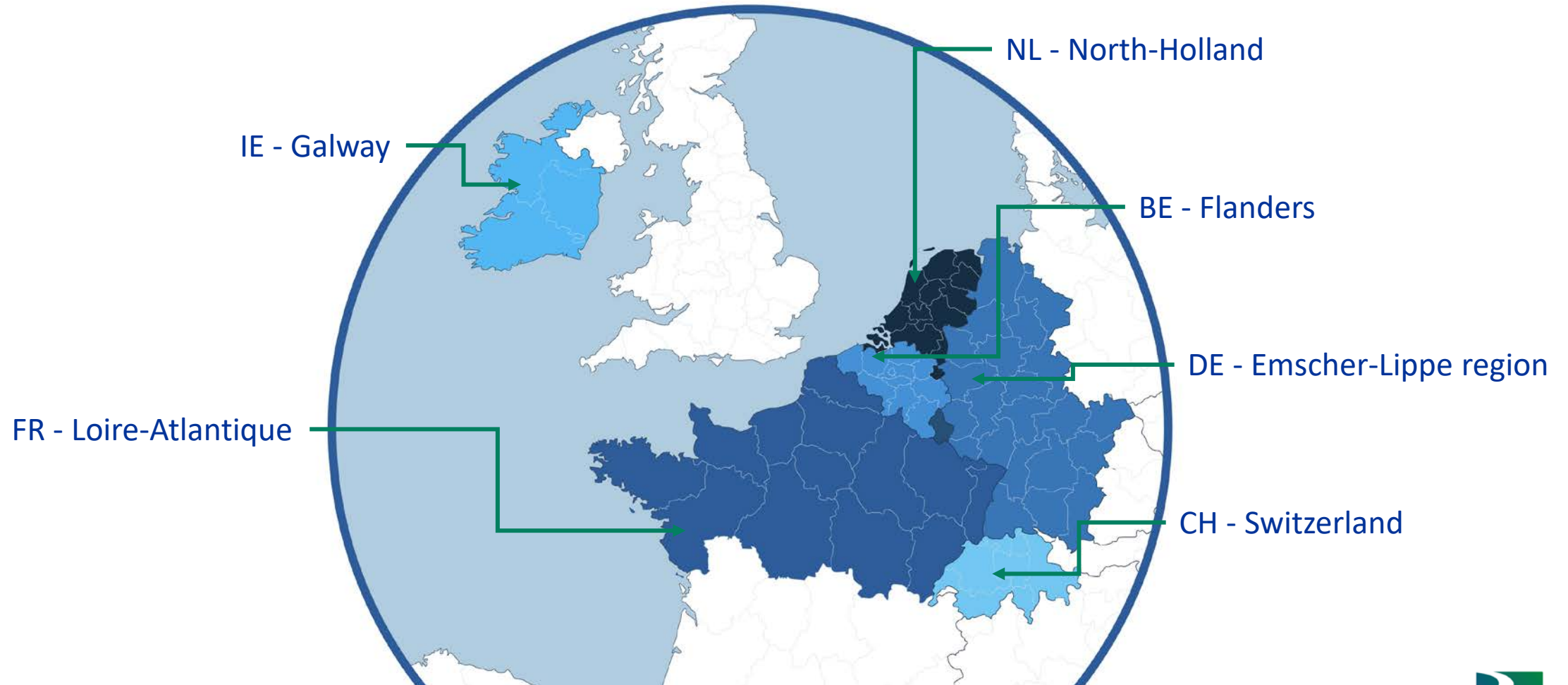
- ADEME Pays de la Loire (FR)
- NRW.Energy4Climate (DE)

Academic partners

- DFKI Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DE)
- SUPSI Scuola universitaria professionale della Svizzera italiana (CH)
- WIW Wupperverbandsgesellschaft für integrale Wasserwirtschaft mbH (DE)



Areas engaged in the project



Ressources of the partnership

- Duration: 2024 – 2028
- Budget: 11.03 Million EURO
- Co_funding: 60% through INTERREG North-West Europe Programme

+ synergies with existing initiatives and projects

Existing knowledge and synergies with current initiatives

Projects

- CNR - Demonstrator of linear bifacial PV along dykes in South of France
- INTERREG NWE - STEPS Storage of Energy and Power Systems
- BMBF- E-BO₂t Electrolysis-based methanol fuels and water efficient oxygen use at a sewage treatment plant in Bottrop
- Life-LetsGo4Climate...

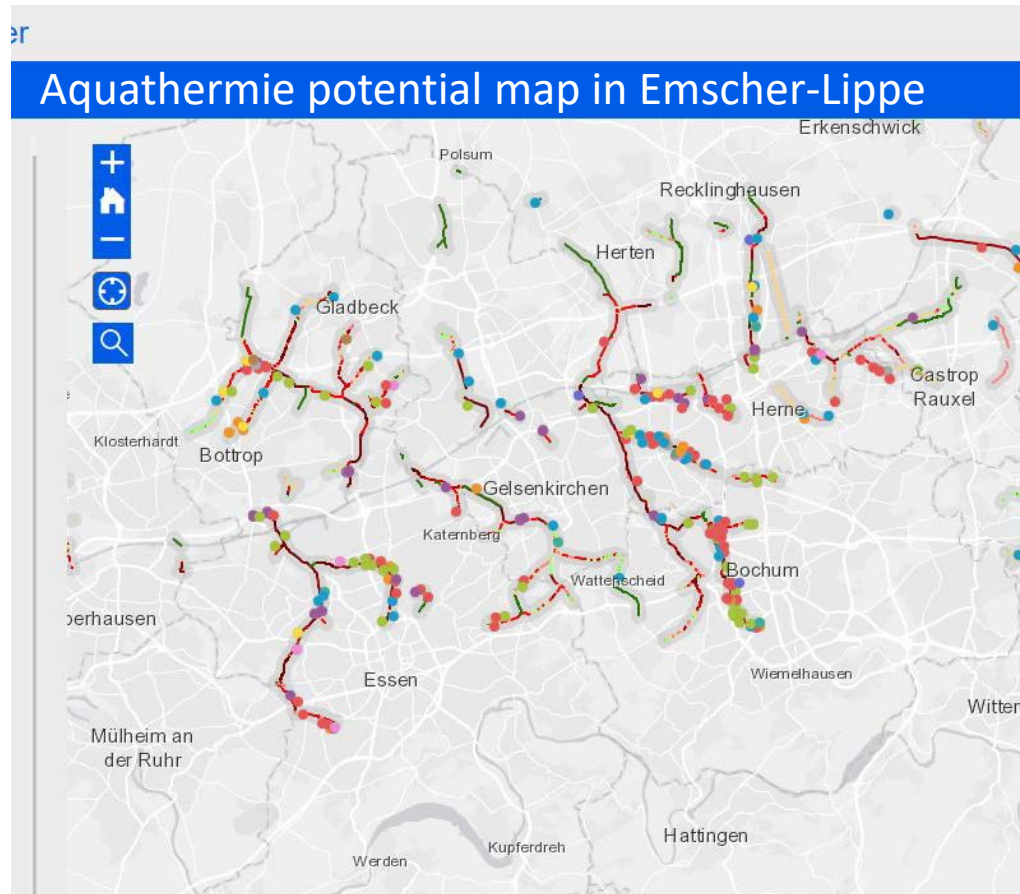
Initiatives/Programme

- Renewable Energy Master Scheme in Loire-Atlantique
- Programme Energie 2027 in Emscher Lippe region
- CIW Aquathermia in Flanders...

**Systematically exploit the
integrated Renewable Energy
Sources potentials of the
distinct infrastructures of the
w&w sector of a territory**

Project approach

WP 1 - Systemise exploitation of the RES-potentials of the w&w sector



© EGLV

RES= Renewable energy sources

w&w = water and wastewater

Partners will work on:

- Methods/tools/strategy to better identify **power** potentials
- Methods/tools/strategy/stakeholders network to identify **heat** potentials
- Blueprint to set up **energy management and storage** systems

WP 2: Demonstrate resilient RES-based solutions in the w&w sector



© EGLV

RES= Renewable energy sources

w&w = water and wastewater


wwtp = wastewater treatment plants

Partners will build demonstrators to showcase at large and small wastewater treatment plants:



- Innovative applications of solar, small-wind power and green gas generation
- Energy management and storage systems at wwtp
- Concept for consumption of energy-surplus & derivatives

WP 2: The 7 pilots plants



BE/Flanders

- Demonstrator for urban areas (wwtp Merksem)
- E-Source: *not piloted*
 -  E-Storage: **BESS**
 - E-Use: power for w&w sector (**peak shaving, blackout scenario**)





NL/North-Holland

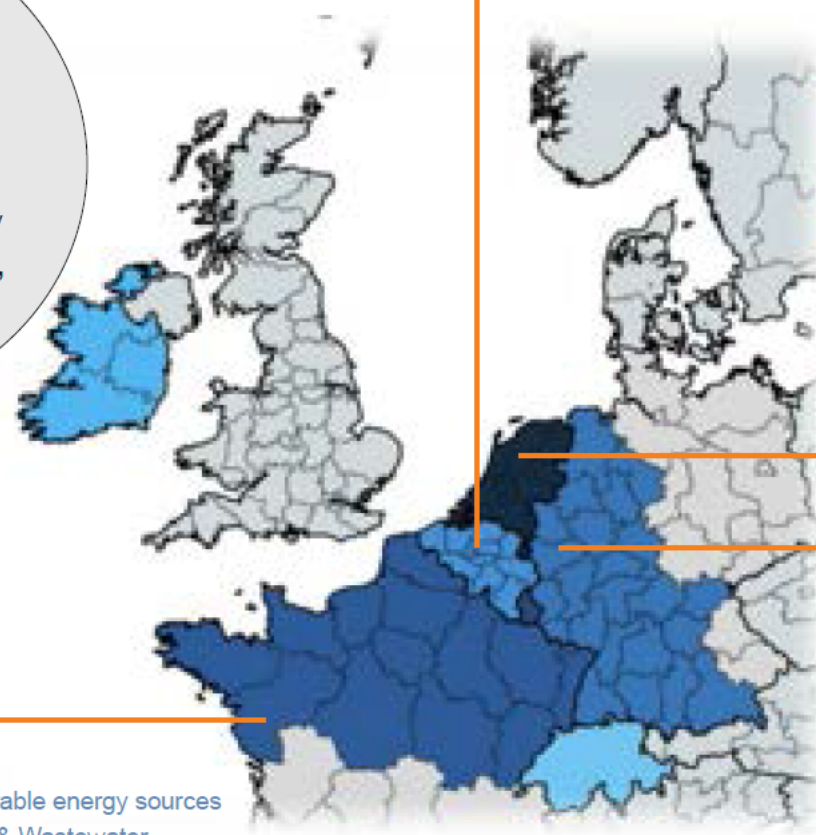
- Demonstrator for urban areas (Zaandam-Oost)
-  E-Source: **wwtp-effluent heat & biogas**
 -  E-Storage: *tbd*
 - E-Use: heat for w&w sector & **biomethane** for grid-injection

FR/Loire-Atlantique

- Demonstrators for rural areas (to be defined)
-  E-Source: **solar PV**
 - E-Storage: *no storage*
 -  E-Use: power for w&w sector + **energy community**

DE/Emscher-Lippe area

- Demonstrator for rural-urban areas (to be defined)
-   E-Source: **small wind + existing PV, biogas**
 -  E-Storage: *tbd*
 -  E-Use: **w&w sector + local community**



RES = Renewable energy sources
w&w = Water & Wastewater
BESS = Battery Energy Storage System

WP 3: Increase capacity of staff in the w&w sector to manage RES-based solutions in their regions



© Shutterstock, Elena lisseeva

Partners will develop and carry out training schemes and materials to train staff and young people at waterboards/municipalities to manage resilient RES-based systems

RES= Renewable energy sources

w&w = water and wastewater

Summary

- ResNRJwater is a project that addresses the challenge of the energy supply at the infrastructures of the water and the wastewater sector in NWE
- It has an engaged partnership that disposed of reasonable resources to reach the project objective “Turn the water and wastewater infrastructures into energy hubs”
- ResNRJwater adopts the approach to systems and combine the exploitation of the unexploited potentials (power, heat, energy management and storage systems)

Expected benefit
Resilient RES-based energy supply
for and from the water &
wastewater sector in NWE,
tailored-made to regional specifics

Interreg



Co-funded by
the European Union

North-West Europe

ResNRJwater

Download presentation and follow us at

resnrjwater.nweurope.eu



OLLSCOIL NA
GAILLIMHE
UNIVERSITY
OF GALWAY