Industry Session 2: **Micro hydro energy recovery and system control towards smart water grids**

#WATEFCON 2018

In collaboration with INTERREG Atlantic Area and the REDAWN project

Water Efficiency Conference
5-7 September 2018
University of Aveiro, Portugal

Water Efficiency Network

Welcome

Chair: Prof Helena Ramos

- Overview of REDAWN and MHPs
- Municipality overview of opportunities and challenges in water networks
- System control: leaks, flow and pressure
- Environmental and regulatory opportunities and constraints
- Case examples
- Q& A / Discussion: Overcoming practical barriers to the update of MHPs
- Summary, closing remarks and what happens next

Session overview

- Dr John Gallagher, Trinity College Dublin, Introduction to REDAWN (10 min)
- Engr Rui Silva Santos e Engr Miguel Zilhão, RSS Portugal (15 min)
- Engr Nuno Aleixo, KSB (15 min)
- Engr Pedro Perdigão, INDAQUA (15 min)
- Engr José Saldanha, Saint Gobain PAM (15 min)
- Engr Margarida Pinhão, Technilab Portugal (15 min)
- Prof Helena Ramos, Summary of the session, IST Lisboa (5 min)
- Polling, Q&A, Discussion

Your views…

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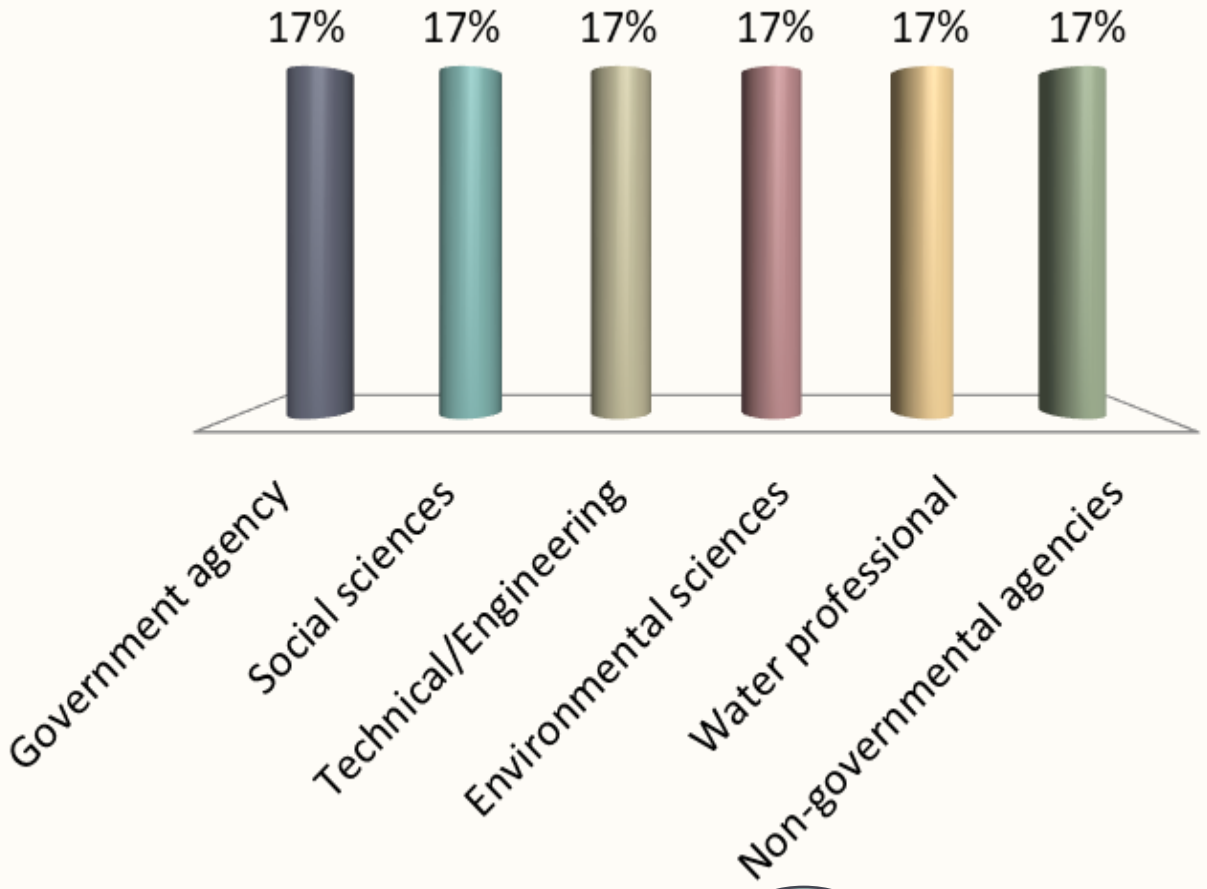
1. Which best describes your area of practice?

A. Government agency
B. Social sciences
C. Technical/Engineering
D. Environmental sciences
E. Water professional
F. Non-governmental agencies
G. Other

1. Qual melhor descreve a sua área de atuação?

A. Agência governamental
B. Ciências Sociais
C. Técnica/Engenharia
D. Ciências ambientais
E. Profissional da água
F. Agências não governamentais
G. Outros



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2. There is a general lack of public awareness of MicroHydro technologies (MHPs) as a renewable energy source in Europe

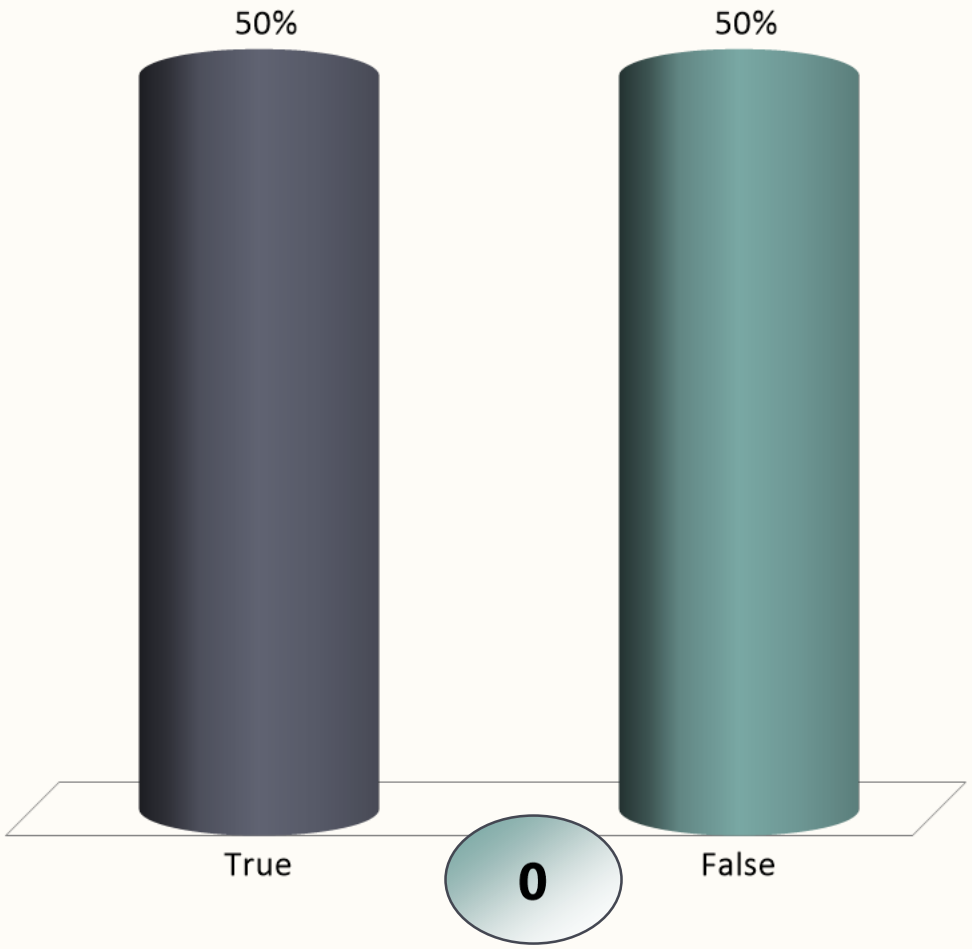
A. True

B. False

2. Existe uma falta geral de conhecimento público das tecnologias MicroHídricas (MicroHydro) como fonte de energia renovável na Europa.

A. Verdade

B. Falso



3. MHPs can reduce water company costs, and therefore deliver social benefits to water customers e.g. savings on water bills.

A. Strongly Agree

B. Agree

C. Neutral

D. Disagree

E. Strongly Disagree

3. Micro hídricas (MHPs) podem reduzir os custos da empresa de abastecimento de água e proporcionar benefícios sociais aos seus clientes, e.g. a redução dos custos.

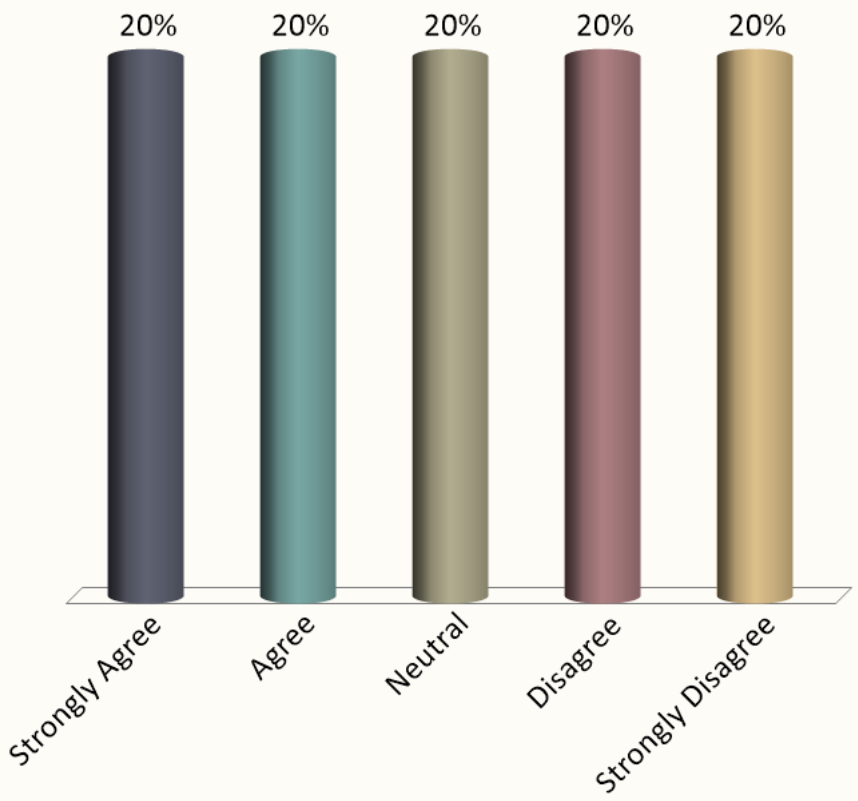
A. Concordo plenamente

B. Concordo

C. Neutro

D. Discordo

E. Discordo totalmente



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4. Which of the following **technical factors** will promote the uptake of MicroHydro technologies?

A. The technology is easier to deploy and install

B. The performance reliability of MHP systems

C. Higher energy yields

D. Lower costs

E. Available and accessible demonstrators

F. Easy access to technical expertise and advice

- *You may select more up to 3 options*

4. Qual dos seguintes fatores **técnicos ajudará** a promover a adoção das tecnologias MicroHídricas (MicroHydro)?

A. A tecnologia ser de fácil implementação e instalação

B. A confiabilidade na eficiência dos sistemas micro hídricos (MHP)

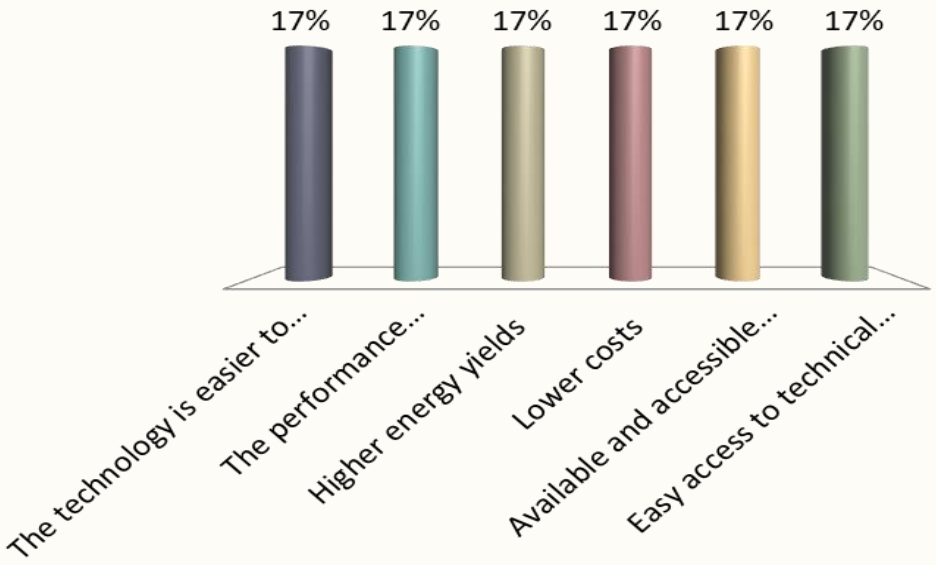
C. Permitir maior produção de energia

D. Permitir redução dos custos

E. Ter instalações piloto disponíveis e acessíveis

F. Ter fácil acesso a conhecimentos técnicos e aconselhamento

Pode selecionar até 3 opções



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5. Which of the following **institutional factors** are crucial for the uptake of MHPs?

A. Public trust in the water companies

B. Policy or regulatory requirement

C. Shared service delivery benefits with customers

D. Financial/warranty incentives to reduce cost risks

E. Community-led social innovation especially in rural areas

- *You may select more up to 3 options*

5. Qual dos seguintes fatores **institucionais ajudará** a promover a adoção das tecnologias MicroHídricas?

A. A confiança do público nas empresas de abastecimento de água

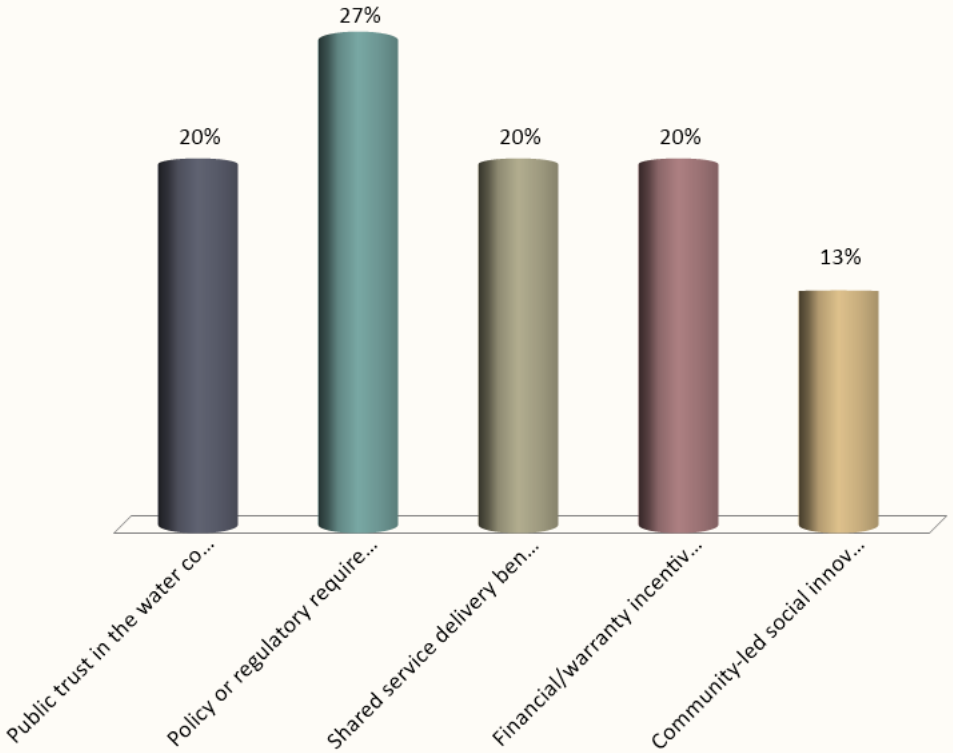
B. Ser uma exigência política ou regulatória

C. Ser um pacote de inovação do serviço para os clientes com benefícios compartilhados

D. Haver mecanismos financeiros para minimizar os riscos dos custos

E. Considerar inovação social liderada pela comunidade, especialmente nas áreas rurais

Pode selecionar até 3 opções



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6. Please **rank the top** three main **drivers** to MHPs in the water sector?

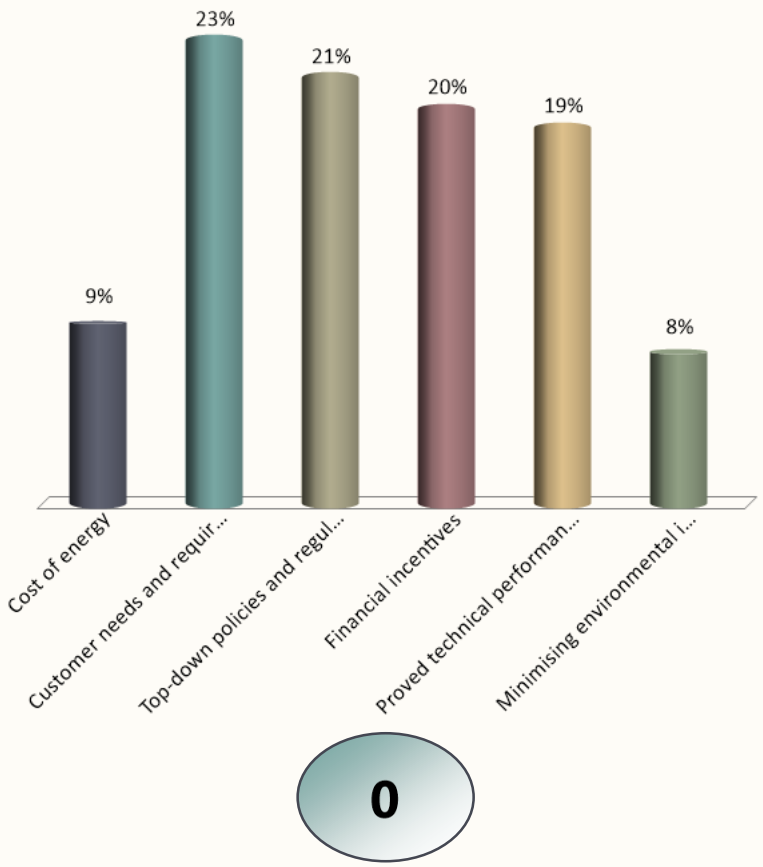
1. Cost of energy
2. Customer needs and requirements
3. Top-down policies and regulations
4. Financial incentives
5. Proved technical performance
6. Minimising environmental impact

1 = highest ; 3 = lowest

6. Por favor **classifique** os três **principais** impulsionadores de micro hídricas no setor da água?

1. Custo de energia
2. Necessidades e requisitos do cliente
3. Políticas e Regulamentos Top-Down
4. Incentivos financeiros
5. Desempenho técnico comprovado
6. Minimização do impacto ambiental

1=mais elevada ; 3= menor



7. Please **rank the top three barriers** to the uptake of MHPs in the water sector.

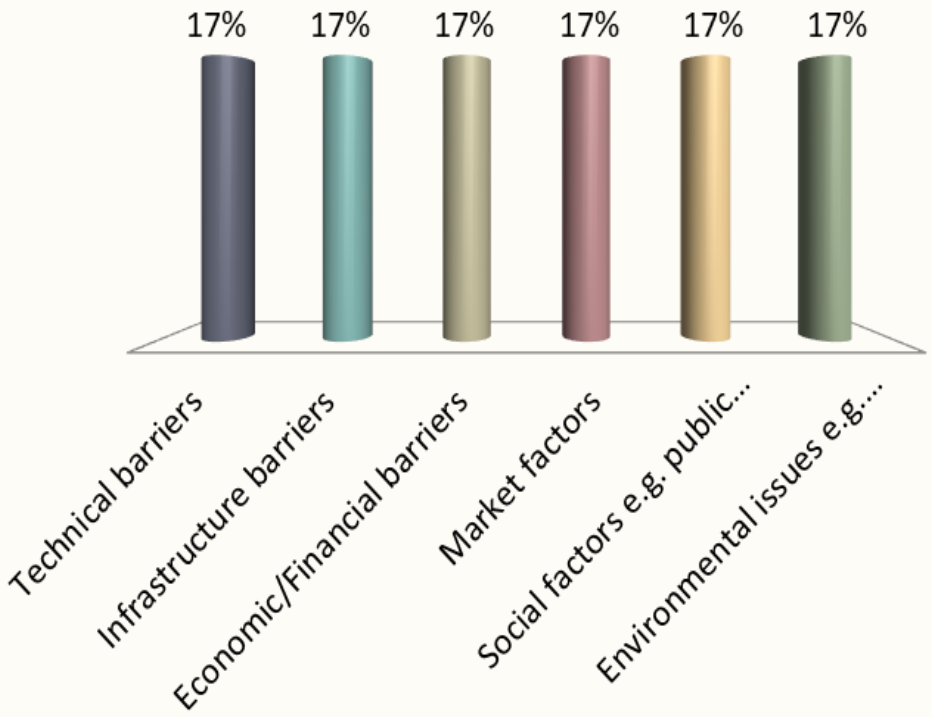
1. Technical barriers
2. Infrastructure barriers
3. Economic/Financial barriers
4. Market factors
5. Social factors e.g. public acceptance
6. Environmental issues e.g. location, ecosystems impact

1 = highest ; 3 = lowest

7. Por favor **classifique** as **principais três barreiras** às tecnologias MicroHídricas no setor da água

1. Barreiras técnicas
2. Barreiras de infraestrutura
3. Barreiras Económicas / Financeiras
4. Fatores do mercado
5. Fatores sociais, e.g. aceitação pública
6. Questões ambientais, e.g. localização, impacto dos ecossistemas

1=mais elevada ; 3= menor



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Q & A
Discussion

Please return the polling response cards

Thank you

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Summary

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Thank you to our speakers

- Dr John Gallagher, Trinity College Dublin, Introduction to REDAWN
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Summary

- 1- Since the water industry is the 4th most energy intensive sector in the AA, REDAWN aims to improve the energy efficiency of water networks in the region through the installation of micro-hydropower (MHP) technology to recover wasted energy in existing pipe networks across irrigation, water supply, process industry. (REDAWN)

- 2- The scarcity of water and the increasing of the water demand is required to aim for an increasing efficiency and effectiveness of water systems (leakage reduction), opting for economically and performed balanced, towards sustainable and long-term solutions. The water system's control and remediation appears as essential, and the recoverable energy can have a significant role in lowering the global operational costs resulting in integrated analyses and projects of water energy nexus. (RSS)

- 3- PAT technology and application for pressure control and energy recovery. Advantages and disadvantages of PATs versus conventional Turbines. Overview of PATs operating range, PAT/Pump operation in water sector; Typical KSB powerhouse and PAT installation. (KSB)

- 4- Key factors for success in water loss reduction: from the motivation to the change - to the definition of the best strategy and its integration in the overall water management, to the implementation and monitoring. Good performance (involving at least the engineering, business and commercial areas) is an important indicator of the overall performance of system. (INDAQUA)

- 5- Overview of a new micro-turbine for energy recovery in water networks. Type and application of this new solution in terms of compact shape, submersible operation, fitted for any position of installation and for high or low pressure working conditions. (Saint-Gobain PAM Portugal)

- 6- Control Valves and Potential Energy Recovery in Water Systems. Efficiency improvement of the water production and distribution systems is currently one of the main concerns for the water utilities, unbilled water and energy consumption are factors that represent large costs in the systems operation. Level control of the reservoirs and proper pressure management can substantially reduce most of water losses as well as the energy consumption. (Tecnilab)

Thank you

Industry guests are welcome to LUNCH and to join the rest of the conference

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Interreg Atlantic Area
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Reducing Energy Dependency in Atlantic area Water Networks

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