



Policy Recommendations

Scotland House, 23 September 2014



**Northern
Periphery
Programme**

2007–2013

Innovatively investing
in Europe's Northern
Periphery for a sustainable
and prosperous future



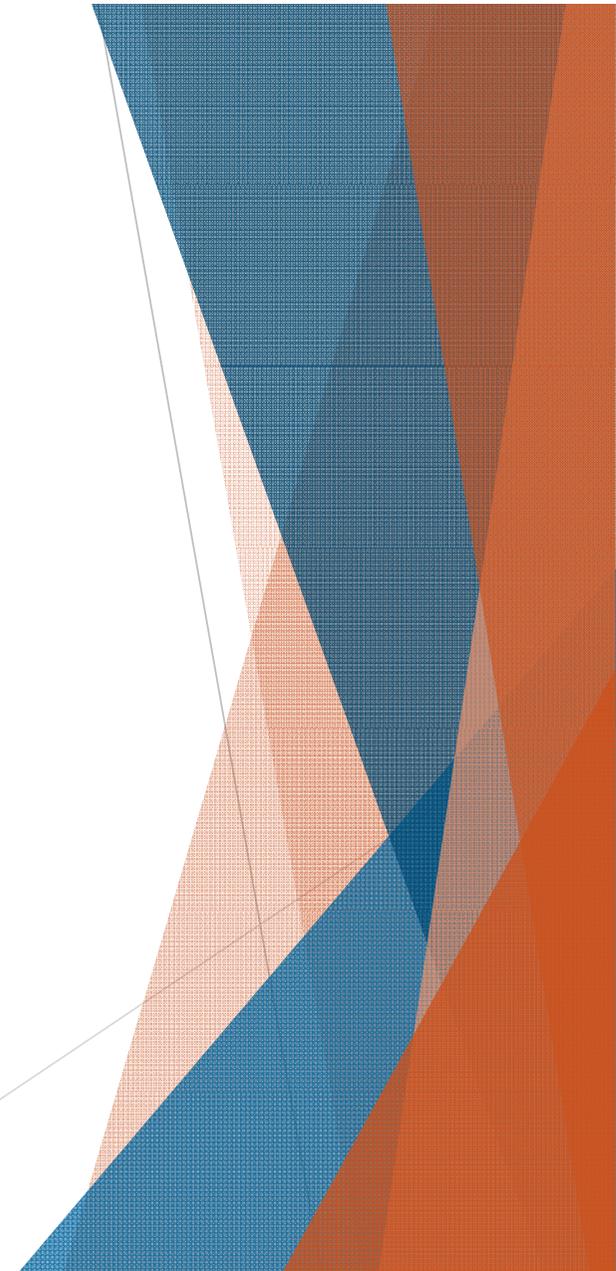
European Union
European Regional Development Fund

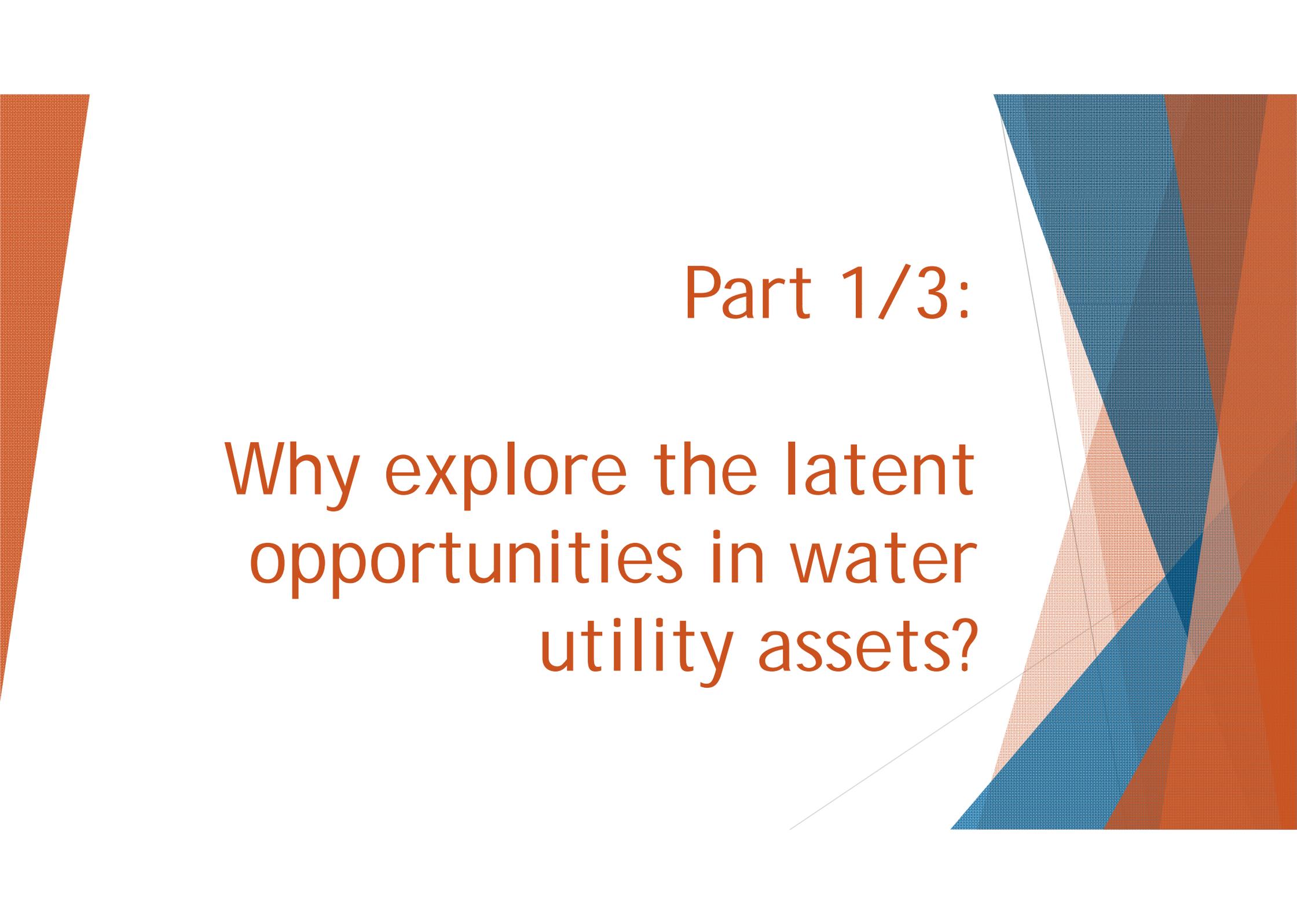
Today's Presentation

Agenda

- ▶ Part 1: Why explore the latent opportunities in water utility assets?
- ▶ Part 2: Policy recommendations
- ▶ Part 3: Knowledge Sharing

The delivery of today's presentation will give you a broad overview of recommendations from the WARES project. All presentation materials are available on the provided USBs and online for you to review in more detail, should you wish.





Part 1/3:

Why explore the latent
opportunities in water
utility assets?

Energy Intensity of Water Services

Pumping groundwater

- ▶ one of the most energy-intensive sources of water available
- ▶ up to 70-80% of overall electricity use
- ▶ Aeration processes: 50% of electricity in waste-water plants
- ▶ Between 2-3% of the world's energy is used to pump and treat water
- ▶ Complicated national infrastructures can make the scale of the challenge less transparent:
 - ▶ e.g. Finland: 400 municipal utilities and more than 1,000 co-operatives
 - ▶ Scotland: largest consumer of energy in the country (1.5%)

The Opportunities

Hidden asset potential

- ▶ Running water, uncaptured heat from plants, high wind-potential land

Cost savings

- ▶ Rising energy prices
- ▶ Consumer bills & increased regulatory pressure

Energy costs are the largest controllable operational costs for water utilities (5%-40%):

- ▶ Reduce fluctuations in the quality and price of electricity

Reduced environmental impact / Increased environmental stewardship

Community empowerment & stakeholder engagement



Challenges faced by utilities

Other important & challenging priorities

- ▶ *Closing the gap: Need to encourage through regulation*

Integration of renewable policy into overall strategy

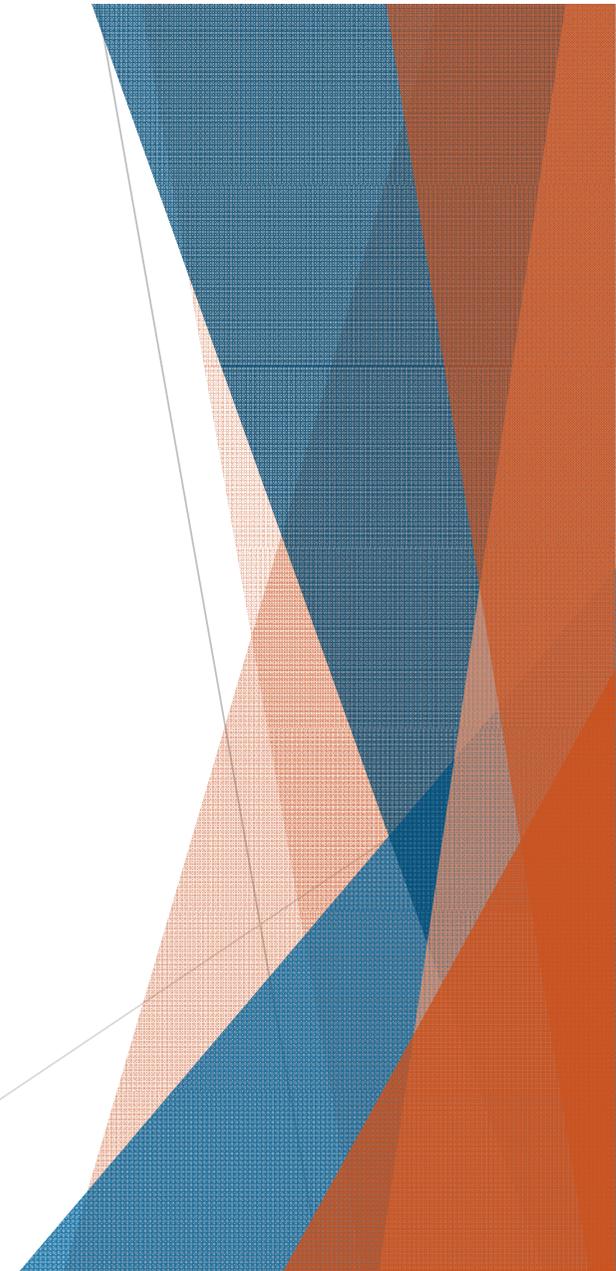
- ▶ Requires a different mindset
- ▶ *Closing the gap: Need to disseminate best practice*

Lack of opportunities and support for asset owners to collaborate

- ▶ *Closing the gap: Regional support mechanisms*

Capital expenses & pay-back periods

- ▶ *Closing the gap: Suitable financial instruments*





Part 2/3:

Policy Recommendations

Cohesion between energy & water policy

The Commission is currently seeking more evidence into regulating the nexus between food/land-use/water/biomass/climate mitigation

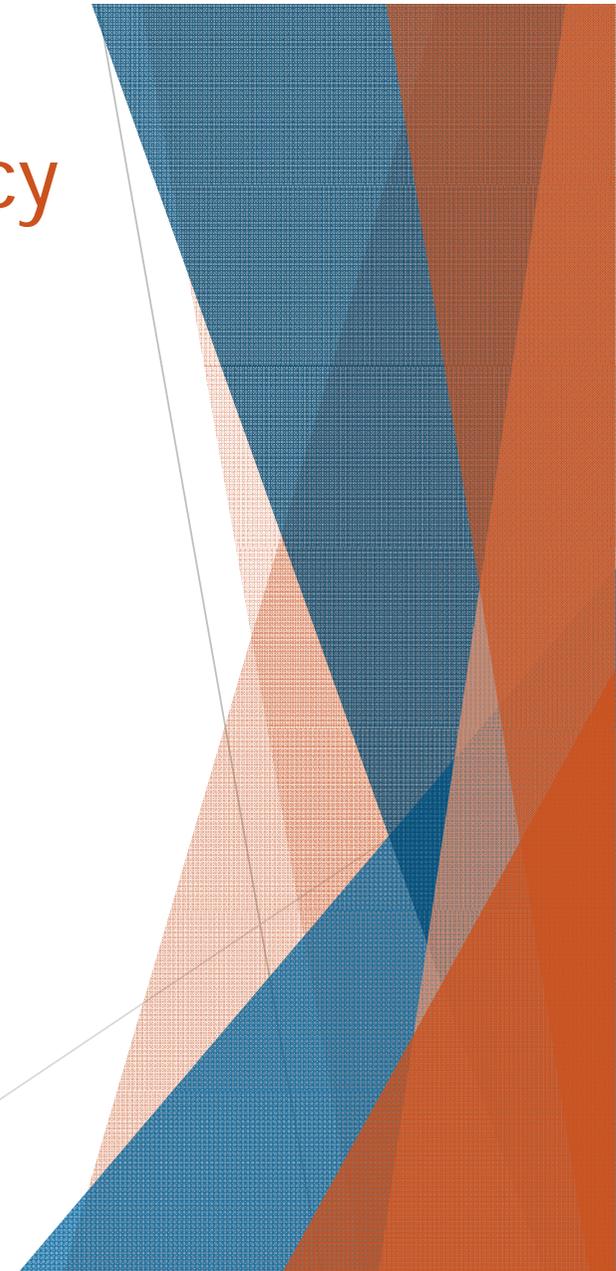
- ▶ A better understanding of the water-energy interrelationship would contribute towards this effort

Need for further evidence-based research

- ▶ Support and dissemination of best practices

Europe is relatively heterogeneous. For example, NPP regions are water-plentiful, but carbon-free energy is a challenge, and, even if resources are available, economies of scale are unfavourable

- ▶ **Integrated resource governance across environmental structures should be pursued**
 - ▶ This requires communication across administrative boundaries



Co-management of Energy & Water Resources

- ▶ There is an inherent connection between energy and water use
- ▶ Despite this, it is uncommon to see energy and water utilities collaborating to identify best practice to increase resource efficiency
- ▶ There is a potential to
 - ▶ Uncover joint cost-saving solutions
 - ▶ Share information to better understand holistic energy-water footprints
 - ▶ Promote and advance the debate on which energy sources are best suited to future requirements



The Water Framework Directive (WFD)

Prioritises environmental quality (rather than water's energy potential). Similarly, the Renewable Energy Directive (RED) has little consideration towards limiting water consumption.

Challenges on suitability with projects such as WARES:

- ▶ The important role that water plays in economic development is not properly understood in the Directive
- ▶ No clear guidelines to promote private investment, support and develop micro-finance capabilities, or decentralisation
- ▶ Lacks a focus on clear guidelines to include water users and other interested parties in management of water resources
- ▶ Focus on technological management over human-oriented management
- ▶ Integration between sectors: focus on water status and environment and not an integrated approach between different water-related sectors

Decoupling economic growth from water & energy consumption

- ▶ Balance required between short/medium/long term, location-specific policies that adopt a holistic approach
- ▶ Integrated resource governance across environmental sectors should be pursued
- ▶ Policies could include:
 - ▶ co-operation at the level of watersheds
 - ▶ integrated water planning and management
 - ▶ applying a lifecycle perspective to the energy production chain
 - ▶ True water pricing & revising subsidies

Public Private Partnerships

International Conference on Freshwater:

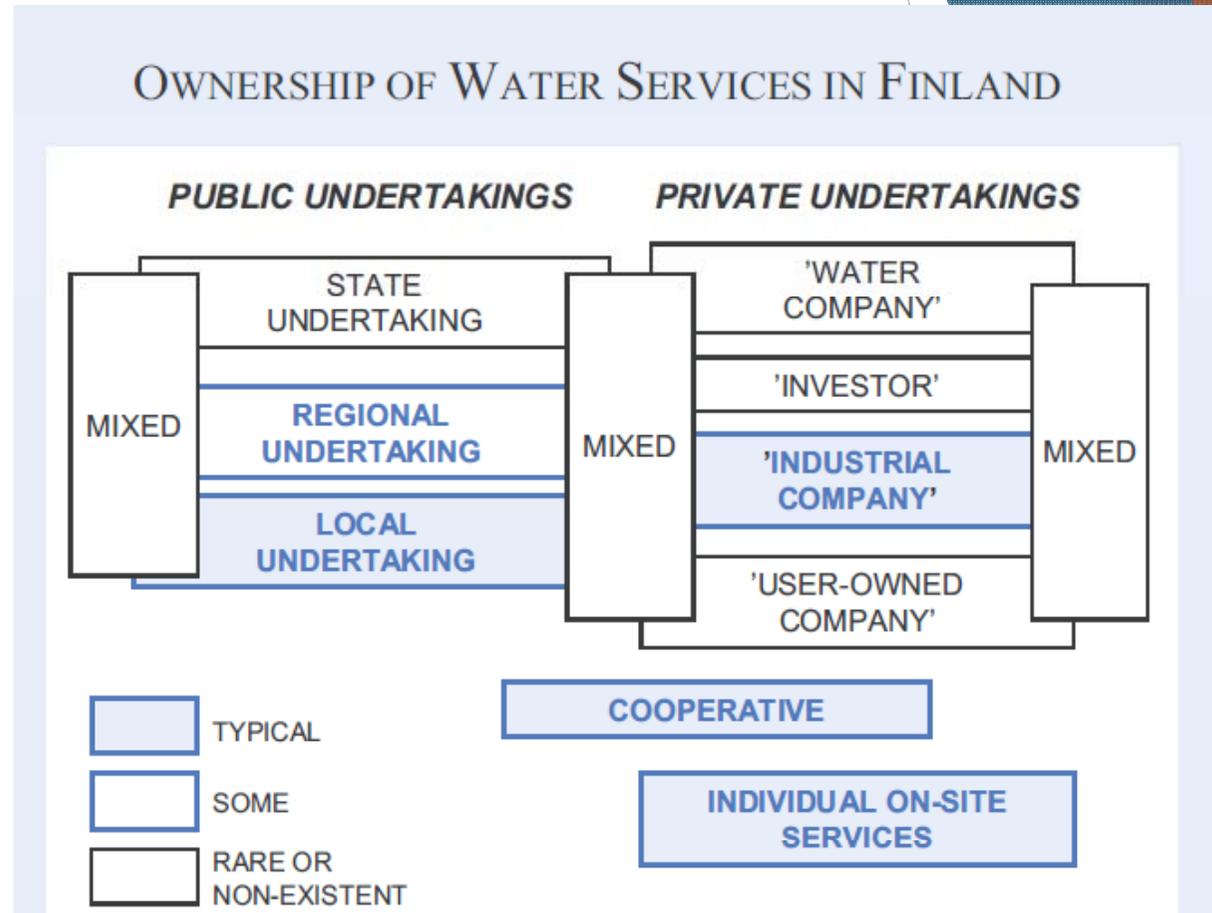
- ▶ *“Decentralisation is key. The local level is where national policy meets community needs.”*
- ▶ Great focus required on PPPs
(N.B. privately managed services does not imply private ownership of water resources)
- ▶ Regional policies are required which encourage channels to communicate, make joint decisions and reduce administrative barriers
 - ▶ Second World Water & WSSD Forum calls for PPP development
- ▶ Water needs to be attractive to private investment; high capital demand

Finland

- ▶ Extensive experience of public-private cooperation

However...

- ▶ Outsourced services can be 60-80% of turnover in public undertakings
- ▶ Short contract periods (3 years) to promote competition
- ▶ Private companies incur nearly 100% of capital expenditure



Best Practice Group Water Scheme (GWS) in Ireland

- ▶ Community-owned enterprises, proven to be effective models for rural regions
- ▶ Over 5,500 GWS serving 10% of the population, producing 1.7 million cubic metres of drinking water daily
- ▶ Significant amount of capital costs of accepted schemes are met by the Exchequer
- ▶ National Federation of Group Water Schemes (NFGWS): priority is water quality

Challenges faced by GWS:

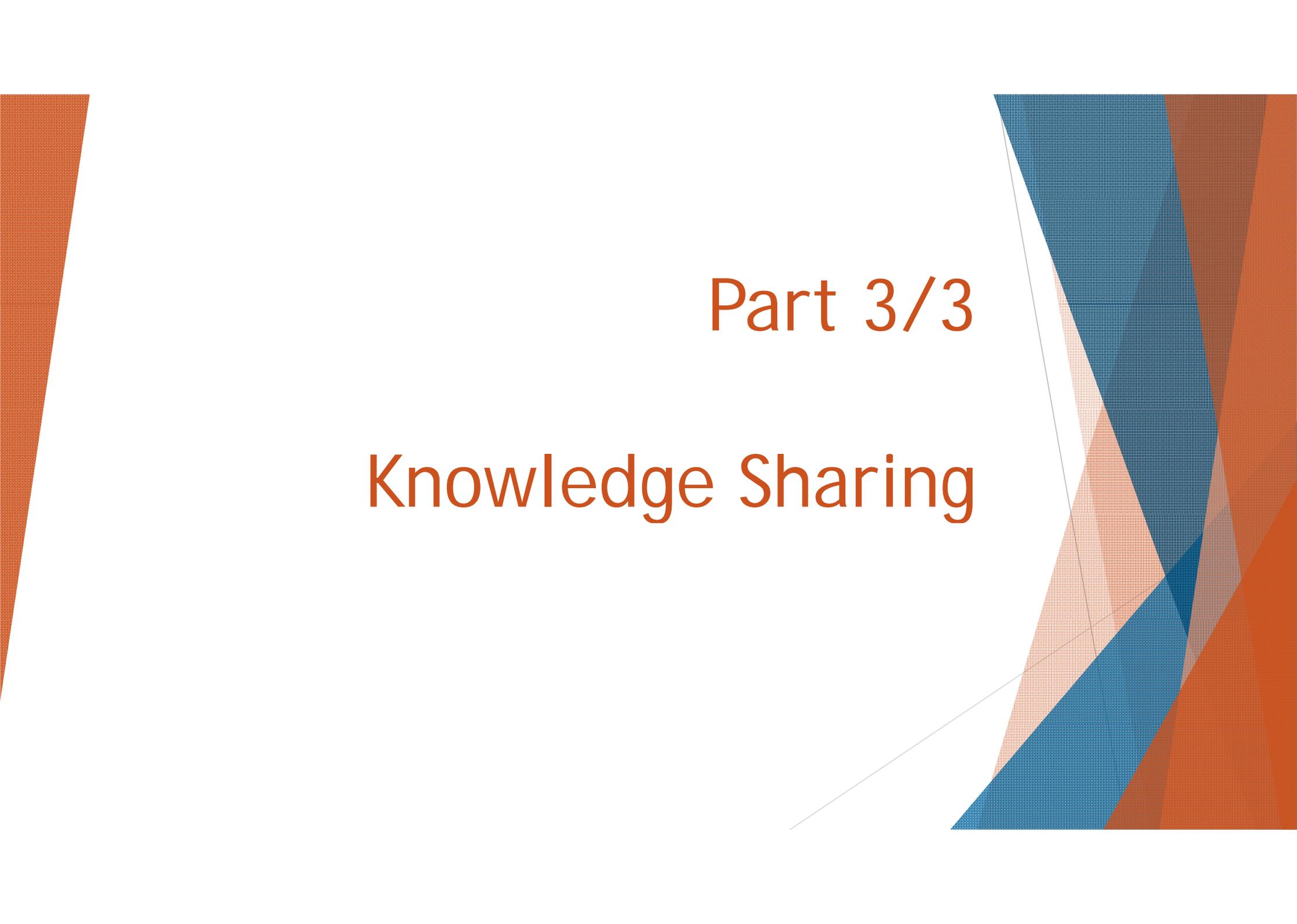
- ▶ Difficult to maintain pace with legislative changes
- ▶ Lack of developed funding mechanisms;
- ▶ Inadequate training and support infrastructure,
- ▶ No capacity on financing for renewables - replacing plant dependent on Exchequer financing
- ▶ No private financing in GWS - DBO model predominant
- ▶ DBO contracts are long term (20-25 years) - no scope when contract is signed, up to private contract to ensure efficiency

Best Practice Irish Planning Permission Exemptions

- ▶ Statutory instrument introduced in 2008 to exempt renewable energy projects from securing planning permission
- ▶ Removes a bottleneck and reduces typical project timeline by 3-6 months
- ▶ Applies to very specific project criteria for industrial use; extending the criteria to include solar PV to water-treatment buildings would be advantageous.
- ▶ Grid connection, licensing to sell to the grid, and queuing systems are issues for renewable energy projects

Best Practice Renewable Energy Obligation

- ▶ Water Resources (Scotland) Act 2013
 - ▶ “aims to maximise the opportunities from the hydro economy and ensure that management of our water sector remains cutting edge.”
- ▶ Ensures proactive management of Scotland’s water environment and assets (property, rights, intangible) is modern and proactive
- ▶ *So far as it considers is not inconsistent with the economic, efficient and effective exercise of its functions, Scottish Water must take reasonable steps to:*
 - ▶ *develop the commercial value of its assets and expertise*
 - ▶ *promote the use of its assets for the generation of renewable energy*



Part 3/3

Knowledge Sharing

Community Benefit & Ownership

Mayo County Council Community Benefit Policy

- ▶ Community Fund & Forum:
 - ▶ developers required to make contributions to the fund
 - ▶ Recreational and amenity facilities, culture and heritage, environment, social inclusion

Agencies: Community Energy Scotland

- ▶ Enabling community ownership of renewable energy projects
- ▶ CARES - loan fund to high risk, pre-planning of renewables which have significant community engagement and benefit (up to 5MW, £150,000, 90% of agreed costs)
- ▶ Lack of similar agencies across other regions

Promoting Collaboration

- ▶ Interest from Scottish Water, Irish Water, and Northern Ireland Water:
 - ▶ Sharing best-practice and knowledge on GWS, for example
 - ▶ Proposed annual meeting to develop infrastructure

Ireland

- ▶ New water utility - Irish Water - opportunity to influence this from conception: raised awareness of WARES pilot and energy efficiency of plants.
- ▶ Potential knowledge transfer via Local Authority Services National Training Group (Water Services Training Group), which, amongst other things, tackles energy efficiency issues

Finland

- ▶ Scientific research supporting European policy
- ▶ Finish Water Association - a forum for sharing best practice and training to water utilities

From WARES Outputs

Legacy of our pilot sites

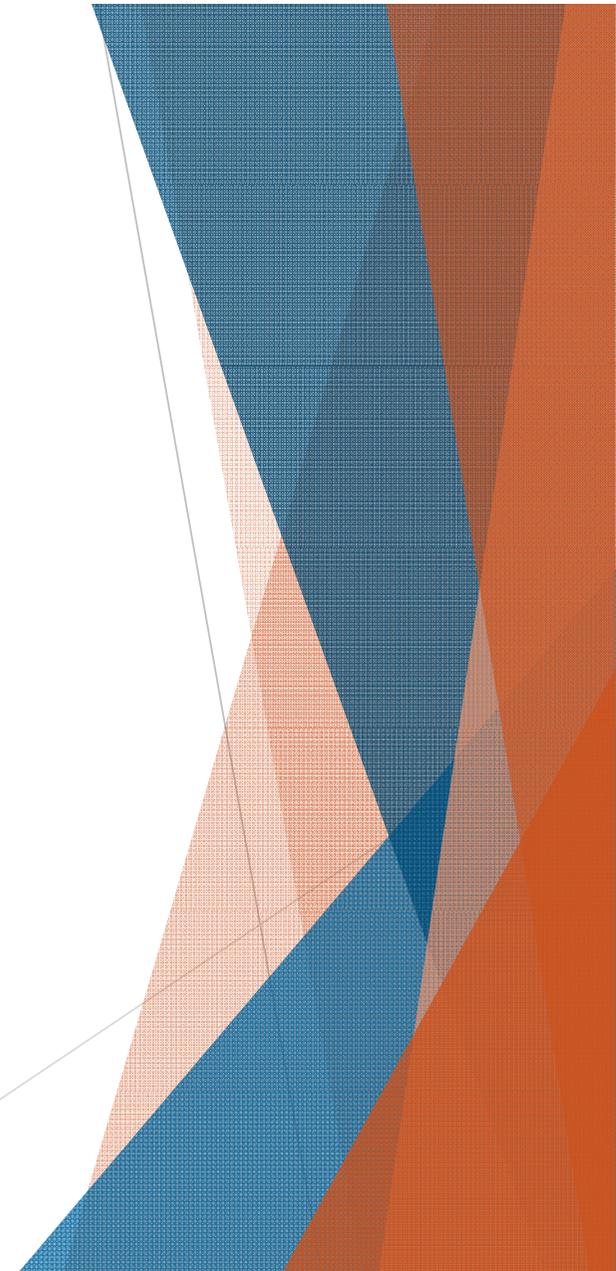
- ▶ The organisations and communities we have engaged

University of Oulu publications

WARES website:

- ▶ www.waresnpp.eu

Reports to the NPP



WARES Messages

1. Energy costs are the largest controllable operational costs for water utilities
2. Use unexplored hidden asset potential
3. Cost savings and environmental benefit
4. Community empowerment & stakeholder engagement

