



**Speech of Durk Krol,  
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## INTRODUCTION

The interrelations and interdependencies between water and energy are well known: energy is required in all the steps along the water value chain, and in return, water is a crucial component in the production of power.

I would like to briefly take this opportunity to highlight the research & innovation opportunities to both the water sector, and wider industry, that will ultimately enhance the capability of the supply chain in the provision of energy efficient technologies for water & wastewater usage & treatment, both in the EU and abroad, thereby increasing the global competitiveness of European water & wastewater solution providers.

The water-energy nexus is also one of the 8 priorities in the Strategic Implementation Plan of the European Innovation Partnership for water.

## Challenges and Research Agenda's

Existing systems and processes will not be able to meet many of the coming challenges, and a paradigm shift is required across society and industry. This requires swift innovations, and end user and public behavioral changes

European water and energy policies are not sufficient integrated and sometimes even conflicting. Furthermore economic incentives to adopt efficient water and energy technologies are inadequate. Water and waste water processes lack low energy technologies, whereas the application of renewable energy is hindered by low efficiency. In addition, these processes are designed to run with constant energy supply, while most renewable energy resources provide variable energy supply. Meanwhile, efficient and cost-effective technologies to recover energy from waste water are not yet fully available

Integration of water and energy planning models and approaches are required to coordinate across the sectorial boundaries. The US and Singapore have already made efforts towards an integrated approach to policy and investment decisions at the water-energy nexus. Europe needs to follow suit, and undertake an analyses of the water implications of energy and climate change proposals, and vice-versa. Thus, it can move towards developing an enabling policy and regulatory framework, which will ensure sustainable growth in both sectors.

Benchmarking tools need to be designed to allow easy access and understanding for stakeholders to make informed decisions around water and energy consumption, and carbon emissions for products and services.

Industrial collaboration is necessary to drive into water and innovations, such as the recovery of heat energy from cooling waters and reducing the amount of water used in cooling. Research into heat exchanges between industrial processes, and the combined water and energy savings of technology, are required to understand how they can best be developed.

Water and waste water treatments and supply research should be integrated with domestic, industrial, and manufacturing involvement, to ensure the most effective use of energy and water resources. This is also important in making buildings and homes increasingly more self-sufficient. Further innovation is required to utilize effective incentive mechanisms and appropriate taxes.

Implementation of the research agenda will lead to an integrated approach to water and energy use between industry, home, and water and waste water treatment and seize the market potential for innovation in this sector!