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CIRCULAR ECONOMY IN WASTEWATER TREATMENT PLANT

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Abstract
Wastewater treatment plants are becoming an important part of circular economy. In addition to the classic role of wastewater treatment plants, they are gaining a new important mission to fulfil. According to the Nutrients-Energy-Water (N-E-W) paradigm, wastewater treatment plants should also focus on energy production and resource recovery. Intensification of biogas production is an important element in improving the energy efficiency of wastewater treatment plants. This can be achieved by introducing sewage sludge co-digestion with organic substrate, thermal hydrolysis and disintegration of the sludge. Water renewal, which includes a number of processes to restore the water features of the wastewater, is also becoming an important objective. Intensive research is being carried out on the production of bioplastics by bacteria inhabiting municipal and industrial sewage. Technologies for recovery of nutrients (nitrogen and phosphorus) from sewage and sludge are also advanced. The paper presents current trends in the development of sewage treatment plants based on the assumptions of circular economy and current policy of the European Green Deal.

Keywords: **Biogas production; Circular economy; N-E-W paradigm; Resource recovery; WWTP.**