RESEARCH BRIEF
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NAWI National Alliance for Water Innovation

Development of the Water Technology Techno-Economic Assessment Pipe Parity Platform (WaterTAP3)

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Challenge

Existing techno-economic analysis (TEA) tools for water technologies and treatment trains fail to provide a consistent, cross-sector, spatiotemporally resolved basis for evaluating the diverse suite of pipe parity metrics to inform desalination technology selection. The TEA tools that do exist are rarely open-source or able to provide transparent data and key metrics for both specific technologies and treatment train performance. As a result, there is a gap in the sector's ability to conduct technical feasibility analyses to help prioritize R&D research in desalination.

Research Approach

The Water Technoeconomic Assessment Pipe-Parity Platform (WaterTAP3) was developed under the National Alliance for Water Innovation (NAWI) to facilitate consistent technoeconomic assessments of desalination treatment trains. The WaterTAP3 is an analytically robust modeling tool that can be used to evaluate water technology cost, energy, and environmental tradeoffs across different water sources, sectors, and scales. The model simulates steady-state water treatment train performance and costs including flow and constituent mass balance across unit processes, based on source water conditions, configurations of treatment technologies, and system-level techno-economic assumptions.

Impact

WaterTAP3 can help identify trade-offs among the different system performance metrics, with insight on how particular technologies or systems promote pipe-parity. The flexibility and comprehensive scope of the tool makes it a promising solution to industry-wide water technoeconomic evaluations, leading to more informed water investment decisions and technologies. As a user-friendly, open-source platform, WaterTAP3 can be used by industry, academia, policymakers, and planners.

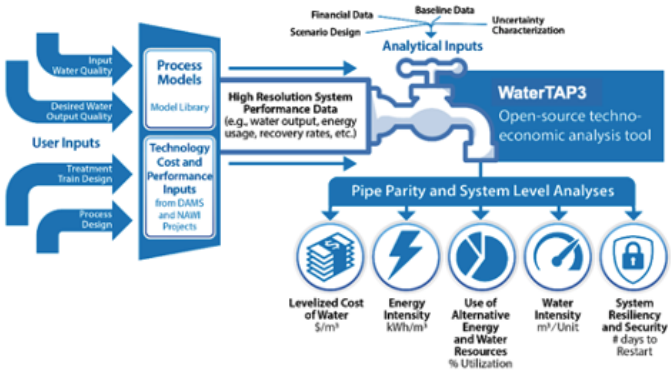

Figure 1. WaterTAP3 evaluates water technology cost, energy, and environmental tradeoffs across different water sources, sectors, and scales, with insight on how particular technologies or systems promote pipe-parity.

RESEARCH PARTNERS

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