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Title: Limitations of Demand- and Pressure-Driven Modeling for Large Deficient Networks

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The paper deals with two dual classical approaches regarding water distribution network modeling. They are dual approaches using balance equations (mass and energy), and optimization (energy). These approaches enable various assumptions for the properties of the solution space and are formulated with a stress on pressure driven modeling hypotheses, which use relaxed constraints thus producing more realistic results. The authors conclude that, although the pressure driven approach is far superior to demand driven modeling in a number of very well documented cases, various model deficiencies, for example, in cases where pressure drops below a physically realistic level, still persist.

The manuscript is on a very interesting topic, since management of deficient networks is currently paramount. As a result, the paper is well-suited for the Journal. The organization of the manuscript is in a good shape. The methodology is well documented and the results are convincing. In my view, however, the literature review in the introduction should be improved. Are there no advances in the subject produced during the last decade?

Additionally, I recommend that the authors revise the paper for some minor errata. Also, English writing, though perfectly understandable, should be carefully revised for better readability.

Examples:

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Line 9: '...represents pipe sections as a link and...' should be 'represents pipe sections as links and...'

Check the use of commas and/or dots after equations. For example, around eqs (1) and (2) some commas are missing; the final dot in line 26 should be a comma,...

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Line 9: replace 'chapter' for 'section'.

Line 26: FAVAD definition has already been given above.

After it, in my opinion the paper can be published without additional review. I believe the paper makes a valuable contribution through the analysis of existing methods and proposing interesting approaches.