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# Influence of Occupant Behavior and Operation on Performance of a Residential Zero Emission Building in Norway

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## **Highlights**

- Influence of occupant behavior on a residential ZEB was analyzed.
- Occupant behavior may change the annual energy balance reliability by 20 %.
- Occupant behavior may result in grid stress variation from -5% – +13%.
- Window openings and DHW would not change significantly the ZEB energy performance.

## ***Abstract***

It has been proven that occupant behavior may significantly change building energy performance. The effect of the occupant behavior is becoming even bigger when it comes to highly energy efficient buildings. Specifically Zero Emission Buildings (ZEB) may become an issue for the electric grid, because they are supposed to be actively connected to the electricity grid for electricity import and export. Therefore, the aim of this study was to evaluate the change in the energy performance of a ZEB located in Norway. Occupant behavior was modelled by using the following methods: standard schedules, well-defined profiles based on thorough statistical analysis, and stochastic methods. To analyze the grid stress, 31 scenarios for different occupant behaviors were analyzed. The overall estimation of investigated parameters showed that the change in occupant

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