

## **Human development and linkages to energy services**

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This session explores the linkages and conflicts between energy services and human needs. The idea that supply-sided energy policies can avoid planetary overshoot is running aground. These ideas rest on the assumption that decoupling energy use (and carbon emissions) from economic growth is simply a technological fix: adopting large scale renewables (to decarbonise energy supply) and energy efficiency technologies (to reduce energy consumption). But this misses the complex behavioural interactions at the consumer/household level, and doesn't acknowledge future societal needs that allow appropriate development space, particularly for the least developed countries. Therefore much more focus is now, belatedly, being placed on demand-sided energy policy responses. To inform such policies, two key areas require a richer evidence base. The first is a better physical understanding of the energy use chain at the end-user stage, in terms of energy services consumed. The second, in parallel, is a better understanding of the relationship between human well-being and energy, across all development spaces, including service-based, industrial, and agricultural/developing nations. The papers in this special session explore these issues – both in terms of (a) advancing the technical understanding of energy use at the end of the conversion chain as it is exchanged for energy services (thermal comfort, light, motion etc.) and (b) conceptual and empirical links between energy services and human well-being. Our session fits well into the overall theme of ESEE 2017 - ECOLOGICAL ECONOMICS IN ACTION: BUILDING A REFLECTIVE AND INCLUSIVE COMMUNITY. Extracting from the Call for Papers, we consider that our research matches well the desire that it contributes “to generating inclusive and reflective research [...] through understanding and promotion of broadly defined well-being; and through empirical insights”. Within the main themes, our proposed session is most aligned with Theme 5: Well-being in Ecological Economics, and within Theme 5, we suggest that the sub-theme most appropriate is 5.1. Strategies for transformation to a low carbon economy (climate adaptation, energy transformation, etc.).