

## ***Interactive comment on “Modelling of the public health costs of fine particulate matter and results for Finland in 2015” by Jaakko Kukkonen et al.***

### **Anonymous Referee #1**

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The paper aims at estimating monetized health impacts caused by emissions of 1 t of PM<sub>2.5</sub> or 1 t of PM<sub>2.5</sub> precursors. The monetized health impacts are given distinguishing between emissions of main source categories and emissions in urban vs. non-urban areas. The calculation is made according to the state of science; the science used is sound, the methodology is well described, calculations have been thoroughly made. However, progress beyond the current state is not made, new developments are not addressed. An example for currently analysed improvements of the methodology is accounting for NO<sub>2</sub> impacts, which the WHO now considers as likely, though less certain than PM<sub>2.5</sub> impacts. Another issue is using exposure (i.e. concentration where people are) instead of concentration in the background, which would involve analysing also indoor sources (smoking, frying, wood heating). Another field

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is source apportionment to improve the large uncertainty of atmospheric modelling. In the text, a small chapter should at least mention current work on improving the methodology. A new part is the calculation of health impacts for emissions of different source groups like transport, residential a.s.o. Up to now, monetized health impacts have been estimated differentiated according to height of release and urban/non-urban area (see e.g. <http://ecoweb.ier.uni-stuttgart.de/EcoSenseLE/current/index.php>). Some important (now older, but still valid) guidelines for the methodology could be cited, e.g. the ExternE Externalities of Energy Methodology 2005 Update; downloadable at [http://www.externe.info/externe\\_d7/?q=node/30](http://www.externe.info/externe_d7/?q=node/30) or the IEHIAS Integrated Environmental Health Impact Assessment System (2011); web based guidance system; accessible under [www.integrated-assessment.eu](http://www.integrated-assessment.eu). The result is indeed useful for consultants or decision makers in Finland, that want to identify the most efficient measures for reducing health effects from fine particles. They may use the given unit cost figures for estimating the health benefit caused by reduced emissions, and could also use the tool provided. The editors should decide, whether the publication fits into the scope of their journal or whether a journal more oriented towards environmental policy application might be a better choice.

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