Scientific report by Martynas Pelakauskas
STSM to KTH, Stockholm, Sweden
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I, Martynas Pelakauskas, have participated in an STSM to KTH in Stockholm, Sweden on 2014 January 12-19. During this time I have worked closely with prof. Mark Howells and his team, in particular with Manuel Welsch, Nawfal Saadi Failali and Constantinos Taliotis on further development and usage of an energy modeling tool OSEMOSyS that they have developed and are maintaining. I have received an introduction on how OSEMOSyS functions and what the principles of it are. I have obtained the skills needed to start building and running my own models. This will allow me to use the tool to further work in my field of research that ties in closely with energy modeling. The current plan is to use the newly acquired skills in building a detailed model of Estonia. This model can then be used by policy makers to assist in the very important decisions that need to be made as Estonia moves away from high carbon emission energy production facilities. The results of this work will also lead to a publication. Additionally, the built model of Estonia will also serve the OSEMOSyS team as it can then be included in the broader model of Europe or even the world to help provide better and much more accurate results. This might in turn lead to other teams being more likely to use the tool for their own research and assist in their work.

Additionally, the OSEMOSyS team has communicated the strong need for an easy to use and flexible user interface. Being a programmer I have joined the project have started to develop an interface that is open source, free to use and also independent of changes in the modeling tool itself. The team has expressed their requirements for the user interface and we have discussed some possibilities of what it could look like. A simple and easy to use user interface is an important step in making the modeling tool more accessible to broader ranges of people. Energy modeling researchers currently working with other tools will then also have an additional one that can be used for anything from easily validating the results obtained in other platforms to being able to build much more complex models in much shorter timeframes than it would be possible by simply using the generic text files for data input.

To sum up, the STSM has been immensely useful to broaden my knowledge of energy modeling. It has also provided me with a more specific direction for my current research and will most likely lead to a publication about an Estonian energy model. Furthermore, it has involved me in the OSEMOSyS team and the work I will do developing the user interface is likely to lead to much simpler and broader adoption of the tool itself thus benefiting the scientific community in general.