

## Scientific report by Martynas Pelakauskas

STSM to KTH, Stockholm, Sweden

2 Mar 2014 – 9 Mar 2014

I, Martynas Pelakauskas, have participated in an STSM to KTH in Stockholm, Sweden on 2014 March 2-9. This was a follow-up visit to the one I took back in January. During this time I have worked closely with the OSEMOSyS team in KTH, in particular with Nawfal Saadi Failali, Abhishek Shivakumar, Constantinos Taliotis and also Dr. Philip Goyns from the Department of Energy, South Africa.

The first STSM I took back in January introduced me to basic concepts of energy modeling and OSEMOSyS. After the visit I have worked by myself trying to build simple models in OSEMOSyS and also putting together some concepts for a graphical user interface for it.

During the second STSM we discussed the ideas I had about the user interface. While some of the ideas I had were found to be interesting to the OSEMOSyS development team, I still had little experience of working with energy modeling tools and therefore very limited knowledge of what a good user interface should be like. Therefore I spent some time working with Dr. Philip Goyns who has been working on developing a user interface for OSEMOSyS in Microsoft Access per request of the Department of Energy in South Africa. Together we looked into what complications arise for me as a new user with the interface he was developing. The work we did is very likely to contribute to higher usability of OSEMOSyS for non-expert users. Additionally, the results were also discussed with the OSEMOSyS development team and there is still an option on developing an alternative open-source free graphical user interface for it.

More importantly, we have started working with Nawfal Saadi Failali on the path to building an Estonian energy model. During the STSM I received lots of assistance on the more advanced parts of modeling with OSEMOSyS. As of today I have come up with an energy chart of Estonia which is the basis for the model that we actually want to build. Once complete, the work will surely result in at least one separate journal article on the Estonian energy model, very likely in a second one with possibly a more integrated view of the region. Once the Estonian model is complete it would then be presented to the industry and, if there is any interest from the industry, some specific case study could be analyzed and the results also published.

To sum up, the both STSMs have helped me in obtaining a new and exciting direction for my research. Not only is work resulting from them likely to be interesting to the scientific community, but it could also have a direct impact to Estonian industry providing companies with actual case studies that interest them and that can have direct effects on decisions that are being made. Furthermore, I have received an opportunity to help with improving OSEMOSyS - to make it more attractive and easier to use for the whole scientific community.