MASTERS THESIS PROPOSAL

TITLE:
Modeling future scenarios for sustainable transport alternatives in Bromma, Stockholm

INTRODUCTION:
The transport sector in Sweden constitutes about 25% of total energy use in the country (Swedish Energy Agency, 2011) and being largely dependent on fossil fuel use, accounts for roughly 28% of the total GHG emissions(Swedish Environmental Protection Agency, 2010). This makes transport a vital point of interest for planning future energy use especially in urban contexts. Car sharing & innovative low carbon mobility alternatives can be important instruments in achieving envisaged goals of creating a 2 kW and 1 ton CO₂ based society in future.

This thesis will be a part of the ongoing research project ‘Situations of Opportunity in the Growth and Change of three Stockholm City Districts’ (SitCit) at the Department of Energy Technology and the Department of Urban Planning and Environment. The thesis will be a continuation of existing research in the area with an objective of developing quantitative predictive models for different scenarios based on various future studies methodologies. The thesis is suitable for single students as well as a group of two students.

LEARNING OBJECTIVES:
After the thesis has been performed the student(s) should be able to:

- Conduct a literature review based on available research on the topic.
- Identify key parameters and actions for more sustainable transport system in Bromma, Stockholm.
- Develop a quantitative model that can be used in scenario development and future studies with a long term time perspective (50 years).
- Discuss the results and findings in a final report and presentation.

METHOD OF ATTACK:
The thesis will start with a literature review with an aim to study present trends and conditions. After which the modeling part of the project will be carried out and scenarios will be developed using STELLA or other available tools. To conclude, a report analyzing the outcomes of the research will be formulated. Student(s) will also be given a possibility to articulate their findings in the form of a published research paper. This part of the project will be outside the thesis work and paid by the department.
In short: A quantitative model shall be developed that can be used to investigate different scenarios where more sustainable alternatives can be introduced in the Bromma transport system in order to increase energy efficiency without causing rebound effects, inconvenience or welfare losses.

PRELIMINARY TIME SCHEDULE
The student(s) can commence working as soon as possible. Tentative, time schedule is provided below (Start as soon as possible):

- **Week 1 – 6:** Literature review of the various existing research available. Followed by the first report.
- **Week 7 – 12:** Developing modeling strategy, conceptual model and finally a quantitative model. Followed by the second report.
- **Week 13–18:** Running simulations, developing future scenarios based on the modeling exercise and analyzing results.
- **Week 19 – 20:** Writing final report and presenting the project results.

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REFERENCES:

