EXECUTIVE SUMMARY

Title
The evaluation of energy efficiency and CO2e abatement according to different technology dissemination policies: guidelines to public policy-makers.

Coordinator
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Objetives
Evaluating energy efficiency potential and the respective CO2e abatement amount according to different policies adopted: it is intended to evaluate the potential of energy efficiency available in three sectors of the economy (buildings, industry and transportation) assuming projections over a 30-year time frame according to a select set of different schemes of dissemination policies (control mechanisms, funding mechanisms, support and market mechanisms). Also, the present research proposal intents to provide a hierarchical rank of energy efficiency policies: rank the analyzed dissemination policies according to their relevance and impacts towards climate mitigation efforts using multicriteria analysis. In general, the intention is to build a portfolio of options concerning efficiency measures and related dissemination policies.

Statement of scientific problem to be tackled by the proposed project
Climate change is increasingly recognized as a threat to development, and developing countries will be most vulnerable due to their proximity to the greatest climatic changes (in the tropics and subtropics), their larger dependence on climate-sensitive sectors, and their difficulties to afford high-cost adaptation measures. In the context of mitigating the global climate change (or its more prominent phenomenon, the global warming), one policy response of particular interest is energy efficiency. This can be used to reduce the level of carbon dioxide in the atmosphere by reducing the amount of fossil fuels and therefore the amount of carbon dioxide released. In fact, the IPCC (2007) makes it clear that improving energy-efficiency is one of the key elements to combat climate change. IPCC (2007) has showed that there is substantial emission reduction potentials per sector that can be implemented by 2030. Energy efficiency may well be the most rapid and cost-effective tool to reducing carbon dioxide (CO2) emissions but is still widely overlooked as a policy instrument. Increases in energy efficiency must be seen as a crucial part of reducing CO2 emissions and minimizing dependence on fossil fuels. In such context, in what refers to the research line "Energy and greenhouse effect gases: emissions and mitigation", the present research proposal is clearly adherent to FAPESP PFPMCG Program.

General aims
Evaluating energy efficiency potential and the respective CO2e abatement amount according to different policies adopted. Providing a hierarchical rank of energy efficiency policies. Build a portfolio of options concerning efficiency measures and related dissemination policies.

Specific Aims
Map energy efficiency opportunities across sectors; Compile results in energy efficiency dissemination policies; Derive performance indicators (using multi-criteria analysis – MCA); Develop a SWOT analysis of the best results; and, finally, propose a list of recommendations to the policy-makers.

Significance and relevance for the FAPESP PFPMCG Program
In what refers, especially, to the research line "Energy and greenhouse effect gases: emissions and mitigation" (explicated in the Announcement of the FAPESP PFPMCG Program), the fact of the present research proposal contain originality characteristics (like develop a theme still no properly explored in Brazil, i.e., the relationship between energy efficiency and climate change) and even

daring (as, for instance, the search for the establishment of relevance indicators for measures of energy efficiency in the context of reduction of the CO2e emission) increases the significance and the relevance of the proposed work.

d.8) Expected results and products in 2 and 4 years

Presentation of considered EE options ranked accordingly to their implementation relevance and associated with the corresponding impact on the amount of avoided carbon emissions. Such presentation based on transparent information, careful and rigorous analysis should provide a useful guide to decision makers and better understanding on the current knowledge of the contribution of existing options in energy efficiency technologies and processes across the main economic sectors considered. This analysis will be done by all relevant technologies and processes of industrial, buildings and transportation. Each technology/process according to the attributes considered and the MCA an objective to combine the evaluation into one index that can be used to rank the lines (technologies/processes). It was considered that two years it is the appropriate and enough time for the accomplishment of the present research proposal.

Expected results and products in two years

The presentation of considered EE options ranked accordingly to their implementation relevance and associated with the corresponding impact on the amount of avoided carbon emissions. Such presentation based on transparent information, careful and rigorous analysis should provide a useful guide to decision makers and better understanding on the current knowledge of the contribution of existing options in energy efficiency technologies and processes across the main economic sectors considered.