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USF FESC EDITORIAL

Redistribution Strategy for Carbon Revenue

By, Prof. Tapas Das, FESC Researcher; USF Dept. of Industrial and Management Systems Engineering

It is not clear yet if the U.S. will finally put a price on carbon. Currently, things do not look very good. However, maybe in a few months, the environment (in Congress) will change and the chances of passing climate change legislation will increase.

My research team is wrestling with one of the most salient questions related to the emission control programs: *what is the optimal redistribution strategy for the revenue raised from either a carbon tax or the auction of allowances in a cap-and-trade program?*

Economists have long advocated for redistributing the carbon revenue among i) households, in order to compensate for the likely increase of electricity prices due to the price on emis-

sions, and ii) renewable-based generators, so that they can improve their competitiveness against fossil-fuel generators and increase their market share. However, there is no agreement as to how the revenue should be split among these market participants and the timing of the redistribution.

My research team is developing a social-welfare maximization-focused mathematical model to obtain revenue redistribution strategies for a planning horizon among households and renewable generators. The optimization model is founded on an Optimal Power Flow (OPF) problem and incorporates multi-period horizon, subsidies for households and renewable-based generators, and a set of constraints for the amount

of revenue available for redistribution during each period.

The model will aid policymakers in proposing/evaluating revenue redistribution strategies that accompany emissions control programs. Currently, my team is testing the model with several sample problems and performing sensitivity analysis of the model parameters.

