Using Municipal Scale Integrated Energy System Models to Fast Track Investments in Advanced Infrastructure and Management Practices

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Disorder-Induced Resistive Anomaly Near Ferr

Climate variability in the 21st century will hasten the nomagnetic Phase Transitions\*Felix von OppenFeed and pace for municipal environments to adapt to impacts ranging from sea level rise to the human health and

economic impacts of the Urban Heat Island. Energy system models reie Universitat BerlinWe show that the resican provide a flexible platform from which to accelerate the debate and decisistivity ρ(T) of disordered ferromagnets nearon, and above, the Curie temperature Tc generis about infrastructure

investments needed to make cities survivable, sustainable, and desirable for human habitation. Decisions about how to manage solid and liquid materials flows

along with energy will need to becally exhibits a stronger anomaly than the s made on an integrated basis.

EPA Region II is developing two versions of a municipal scale energy system model that will look at technologies and management practices forcaling-based Fisher-Langer prediction. Treat reducing greenhouse gas emissions from primary energy (electricity), municipal solid waste, and wastewater. The output of the model based on the proven MARKAL platforing transport beyond the Boltzmann descriptim (see www.eon, we find that within mean-field theory, dtsap.org)

is designed to provide a “ρ/dT exhibits a |T-Tc|-1/2 singularity near blueprint” for a municipal Environmental Management System.

(EMS)

Taking a series of “cost –bTc. Our results, being solely due to impuritenefit curves” of advanced technology and management practices and translating them into a municipal scale EMS is thought to be frontier

work in the area of Industrial Ecology. These models are the Nies, are relevant to ferromagnets with low Tew York City MARKAL,

which to date has an energy loop and has examined at an electric utility substation level the impact of green building technologies as a mitigation measure for the electric distribution system of Consolidated Edison. It is hoped that a solid waste and waste water

loop will be added in 2006. The second model, which will serve as the justification for completion of the NYC model, is the Carolinac, such as SrRuO3 or diluted magnetic semico Puerto Rico integrated MARKAL which

will contain electricity, waste water and solid wanductors, whose mobility near Tc is limited ste loops. The results of the NYC Model

have sparked interest by EPA Region VI in Dallas Texas and numerous stakeholders in that area including the Texas General Land Officby disorder.\*Carsten Timm, M. E. Raikh, Felie and Austin Energy. The NYC model

was a collaboration of EPA Region II, Brookhaven National Laboratory, and the State University of New York at Stony Brook.

To be presented at the Eastern Region Energy Water Needs

Assessment Workshop, December x von Oppen, Phys. Rev. Lett. 94, 036602 (2005).12-14, 2005, Baltimore, Maryland