Abstract Submitted
for the DFD17 Meeting of
The American Physical Society

Hess Tower field study: sonic measurements at a former building-integrated wind farm site DANIEL ARAYA, University of Houston — Built in 2010, Hess Tower is a 29-story office building located in the heart of downtown Houston, TX. Unique to the building is a roof structure that was specifically engineered to house ten vertical-axis wind turbines (VAWTs) to partially offset the energy demands of the building. Despite extensive atmospheric boundary layer (ABL) wind tunnel tests to predict the flow conditions on the roof before the building was constructed, the Hess VAWTs were eventually removed after allegedly one of the turbines failed and fell to the ground. This talk presents in-situ sonic anemometry measurements taken on the roof of Hess Tower at the former turbine locations. We compare this wind field characterization to the ABL wind tunnel data to draw conclusions about building-integrated wind farm performance and prediction capability.

Daniel Araya
University of Houston

Date submitted: 01 Aug 2017 Electronic form version 1.4