## STABILIZATION OF FLEXIBLE STRUCTURES: APPLICATION TO WIND TURBINES AND SKYSCAPERS

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Modern wind turbines have bigger blades to increase the capacity of power output. However, larger blades are more prone to bending and vibrations. Stabilization of floating wind turbines. These are off-shore wind turbines mounted on floating moored platforms that are subject to vibrations caused by sea-waves and wind. This project investigates the stabilization of wind turbine towers and vibrations in tall buildings using tuned mass dampers (TMDs). TMDs are already used in tall buildings, mainly for reducing wind induced and seismic oscillations, but they are promising for other structures. These flexible structures are modeled as distributed parameter systems. The aim of this project is to investigate the solutions of such equations and further analyse the stabilizability and controllability of these systems. We use various mathematical tools like semi group theory and operator theory to study passive systems, which are used to model such systems.



FIGURE 1. Floating Wind Turbines, Source:NREL



FIGURE 2. Building with tuned mass damper. Source:BSBG



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