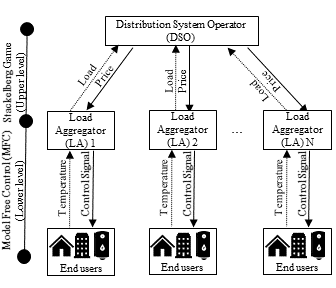
This directory contains implementations of Hierarchical Model-Free Transactive Control of Building Loads.



**Code Explanation:**

(1) Auxilary.py

* Includes the model-free control (MFC) function to control the building loads.
* Building load simulators to calculate the temperatures and power consumption of building loads.

(2) nominal\_demand\_create.py

* Calculates the nominal demand of next day for a given set of buildings and weather forecast.

(3) price\_demand.py

* Day-ahead optimization of price and aggregate load profiles.
* Requires installation of IPOPT[[1]](#footnote-1)

(4) weather.py

* Pulls the weather forecast of given coordinates using the OpenWeather API[[2]](#footnote-2).

(5) main\_deploy.py

* Wraps everything and runs the code

**References:**

Amasyali, K., Chen, Y., Telsang, B., Olama, M., & Djouadi, S. M. (2020). Hierarchical model-free transactional control of building loads to support grid services. IEEE Access, 8, 219367-219377.

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1. Wächter, A., & Biegler, L. T. (2006). On the implementation of an interior-point filter line-search algorithm for large-scale nonlinear programming. *Mathematical Programming*, *106*(1), 25-57. [↑](#footnote-ref-1)
2. https://openweathermap.org/. [↑](#footnote-ref-2)