IBPSA Project 2: BOPTEST
Task 2
Virtual Progress Meeting

10/16/2025
9:00 AM – 10:00 AM U.S. Eastern Time

Participation

Name	Affiliation
Lieve Helsen	KU Leuven
Jaap Neven	
David Blum	LBNL
Ettore Zanetti	
Harald Taxt Walnum	SINTEF
Nikolai Drigalenko	NTNU
Bertrand Kerres	Terion

Agenda

Generally, updates to ongoing initiatives and discussion of possible new initiatives.

1. Weather forecast uncertainty [Laura and Zhe]
    - Released with v0.8.0.
2. Repo Refactor [Dave]
    - No update
3. Online Dashboard and Service [Dave/Kyle]
    - Updated database to be more flexible for changes without losing data.
    - Revised front-end UI to be simpler and including scatter plots
    - Added filtering on BOPTEST version and weather forecast uncertainty
    - Uses OAath for sign-in with existing GitHub or Google accounts.
    - Suggestion: add download csv button.
    - Finalizing changes and testing before advertising as ready to use.
4. DOPTEST [Javier]
    - No update
5. OpenModelica compilation testing and library updates [Ettore]
    - Updating test cases to Modelica 4 and latest Building and IDEAS – move to using Dymola to export the CS FMUs (with binary export license) – all test cases can compile and simulate as FMU, except numerical issue with singlezone_commercial_hydronic – Ettore to check with Harald.
    - Continue testing OpenModelica to compile and simulate test cases (including repo unit tests) – migrate to OpenModelica as CS FMUs for test cases work.
6. Semantic modeling [Ettore/Others]

- Progress on adding semantic models to bestest_air and multizone_office_simple_air at https://github.com/ibpsa/project1-boptest/pull/709.

7. New KPI – Actuator Travel [Xing and Jan]
    - No time
8. Sensor Uncertainty [Jaap]
    - MS Thesis has two aims: 1) what are realistic of describing sensor noise in buildings (white, bias, etc.) and how to quantify and 2) testing different sensor uncertainties with MPC and understanding impact on performance.
    - Specific measurements are – measurements of air or operative temperature in the zone. Start with bestest_heat_pump_hydronic, maybe move to two-zone apartment.
    - Eventually for implementation in BOPTEST, look back at previous work by Harald on sampling in Modelica and sensor resolution.
9. Component Failures [Nikolai and Harald]
    - Nikolai wanting to simulate sensors and components breaking for PhD
    - Dave shares previous LBNL and PNNL work to create benchmark data sets for AFDD and modeling faults
        i. Home page with many publications and datasets: https://faultdetection.lbl.gov/
        ii. Fault modeling:
            1. https://doi.org/10.1080/19401493.2024.2382757
            2. https://escholarship.org/uc/item/60m3d5vz
            3. https://eta-publications.lbl.gov/sites/default/files/a_simulation-based.pdf
        iii. Dataset: https://buildings.lbl.gov/publications/labeled-dataset-building-hvac-systems
    - Ettore has some experience with modeling faults in BACnet communication through BACnet interface with BOPTEST.
10. Ideas for new initiatives [All]
    - None