IBPSA Project 1

WP 3.2 Application

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Objective of WP3.2

To demonstrate capabilities enabled by the use of Modelica for building and district energy systems design and operation

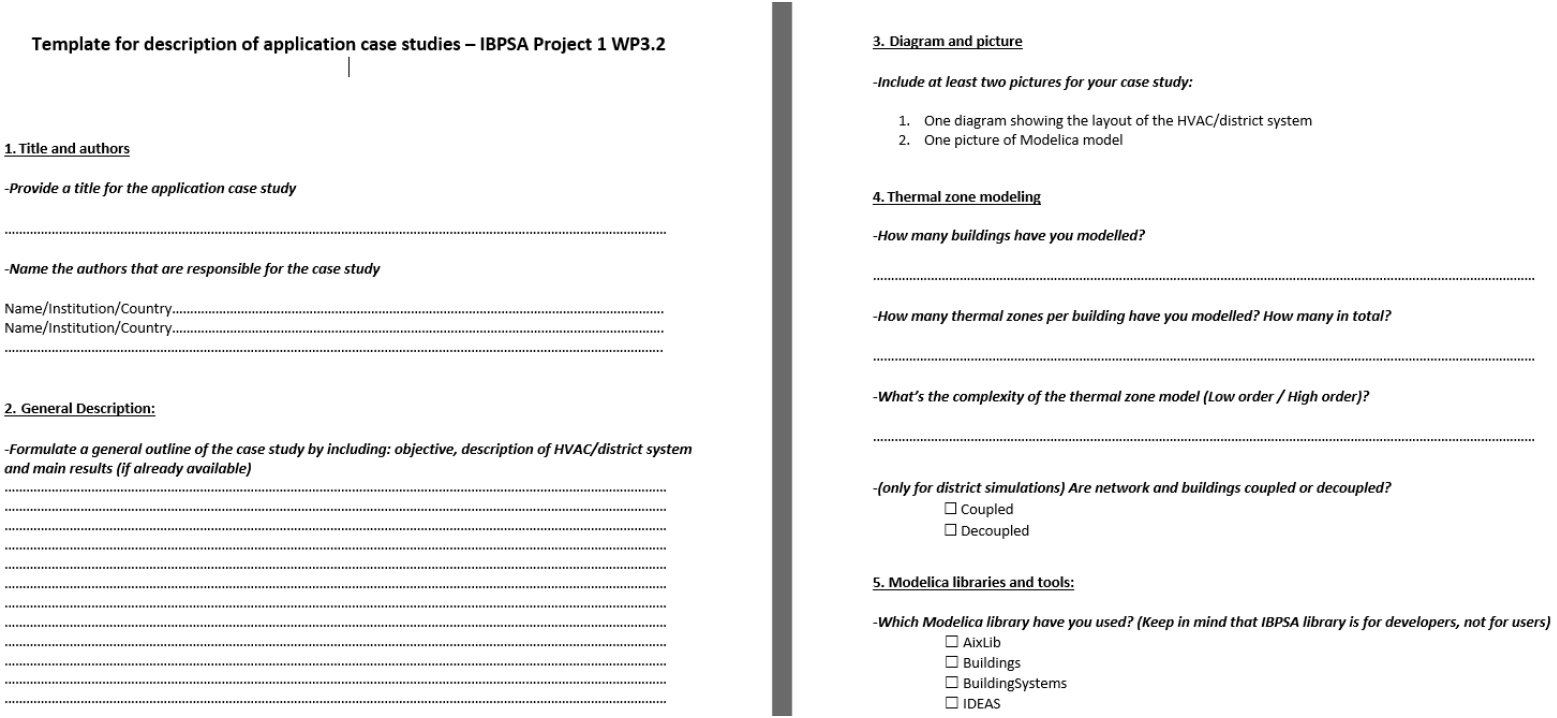
Outcome

Collection of application case studies aiming at:

- disseminating best practices to the simulation community,
- illustrating the possibilities that Modelica offers for the design, modeling and analysis of building and district energy system, and
- identifying research needs for Task 1 and Task 2 of IBPSA Project 1

How are the case studies being collected?

Participants fill in a “case study template” available at https://github.com/ibpsa/project1/tree/master/wp_3_2_app



Template for description of application case studies – IBPSA Project 1 WP3.2

1. Title and authors

-Provide a title for the application case study

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-Name the authors that are responsible for the case study

Name/Institution/Country.....
Name/Institution/Country.....
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2. General Description:

-Formulate a general outline of the case study by including: objective, description of HVAC/district system and main results (if already available)

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3. Diagram and picture

-Include at least two pictures for your case study:

1. One diagram showing the layout of the HVAC/district system
2. One picture of Modelica model

4. Thermal zone modeling

-How many buildings have you modelled?

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-How many thermal zones per building have you modelled? How many in total?

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-What’s the complexity of the thermal zone model (Low order / High order)?

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-(only for district simulations) Are network and buildings coupled or decoupled?

☐ Coupled
☐ Decoupled

5. Modelica libraries and tools:

-Which Modelica library have you used? (Keep in mind that IBPSA library is for developers, not for users)

☐ AixLib
☐ Buildings
☐ BuildingSystems
☐ IDEAS

Current case studies

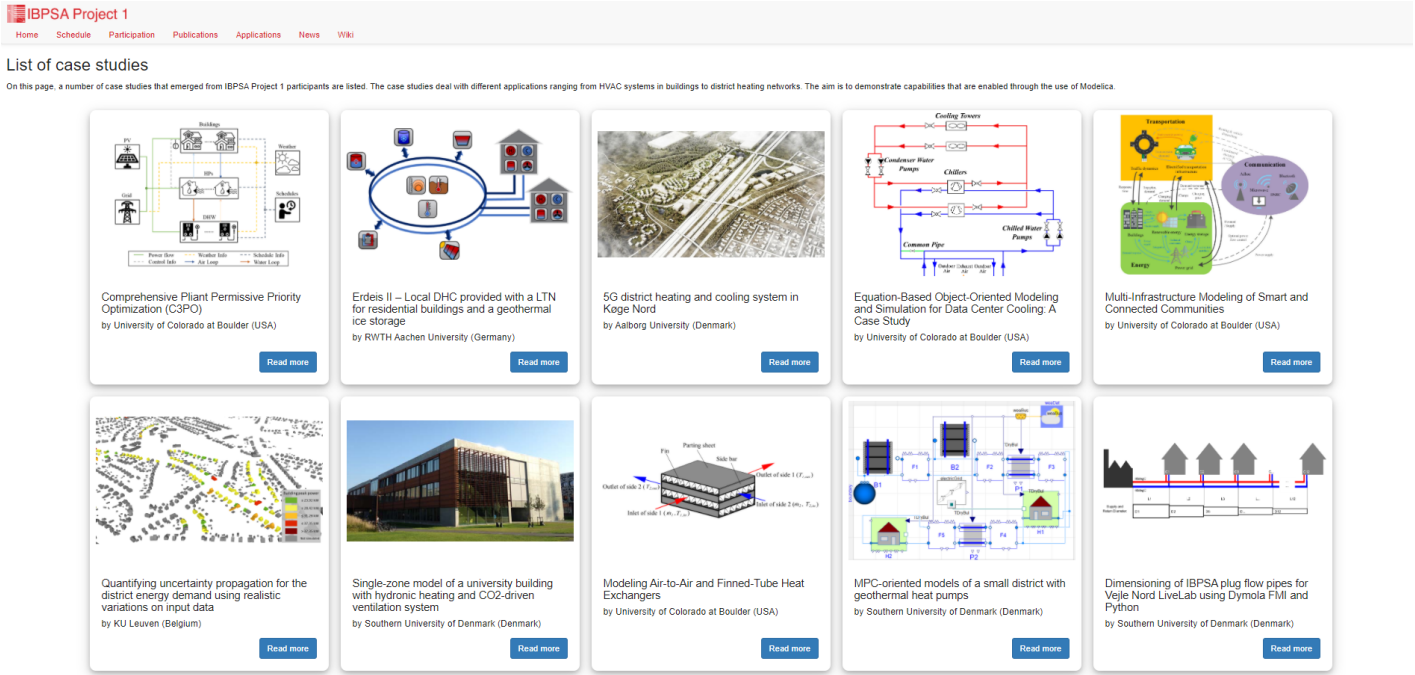
So far 11 case studies have been collected

	Institute	Scale
1	KU Leuven	District
2	University of Southern Denmark	District
3	University of Southern Denmark	District
4	University of Southern Denmark	District
5	University of Southern Denmark	Building
6	University of Colorado Boulder	Building
7	University of Colorado Boulder	District
8	University of Colorado Boulder	District
9	University of Colorado Boulder	Component
10	RWTH Aachen University	District
11	Aalborg University	District

New case study from LBNL coming soon!

Uploading case studies on IBPSA Project 1 website

The case studies have been recently uploaded on the Project 1 website at https://ibpsa.github.io/project1/applications



Next steps

- Continuing the collection and coordination of new case studies (if you have a new case study to be included in the IBPSA Project 1 please drop me an email at amac@build.aau.dk

- New potential activities will be discussed in the coming months. Possible ideas are:
  - Making publicly available the Modelica models of the case studies
  - Developing python-based scripts in collaboration with Task 2 for accelerating the generation of Modelica models