IBPSA Project 1

BIM/GIS and Modelica Framework
for
building and community energy system
design and operation
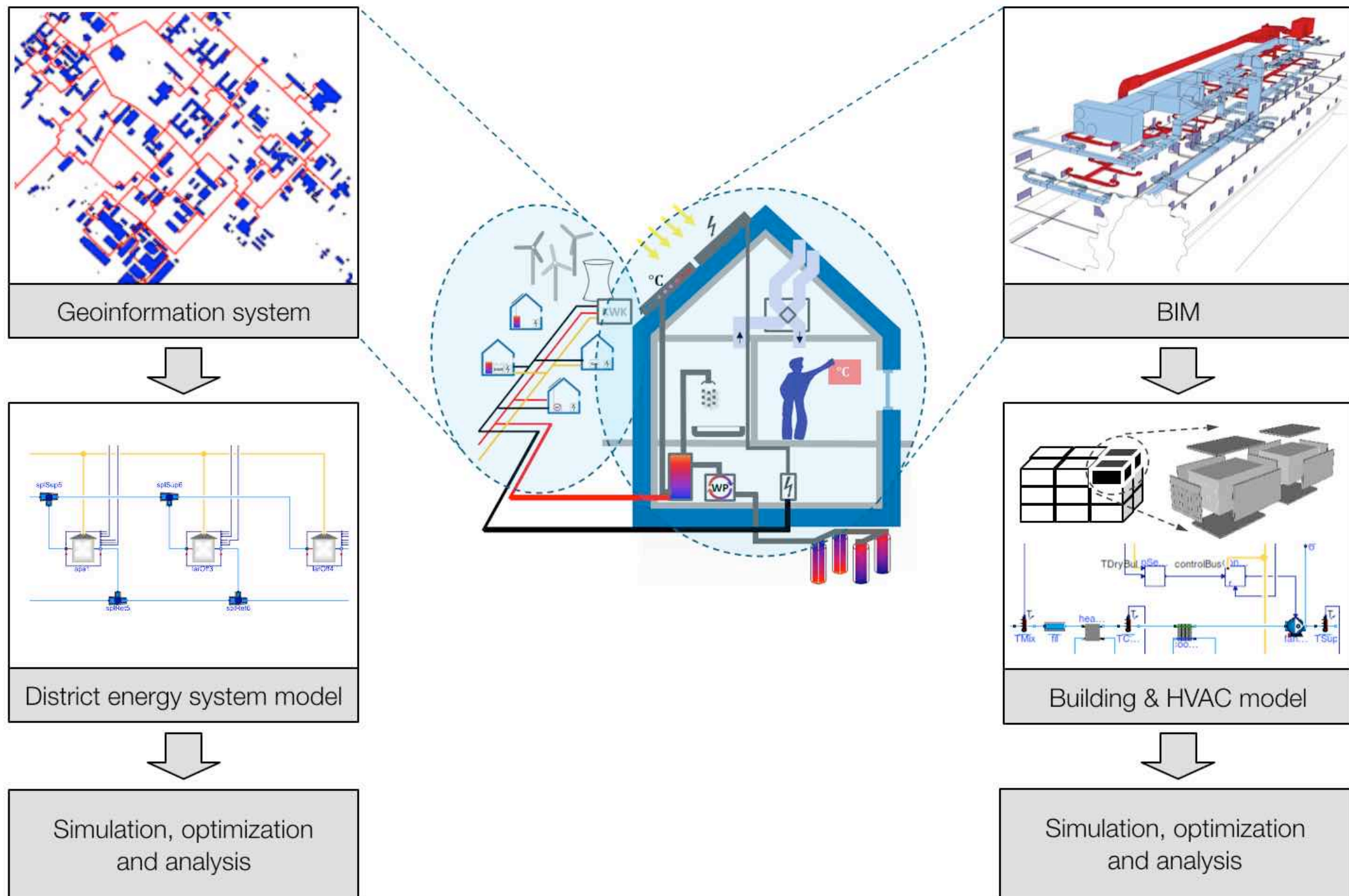
Michael Wetter, LBNL, Berkeley, CA

Christoph van Treeck, RWTH Aachen

Jerome Frisch, RWTH Aachen

October 18, 2021

The vision of IBPSA Project 1 is to create open-source software that builds the basis of next generation computing tools for the buildings industry

Geoinformation system

District energy system model

Simulation, optimization and analysis

BIM

Building & HVAC model

Simulation, optimization and analysis

Levels of participation

Sponsoring participant
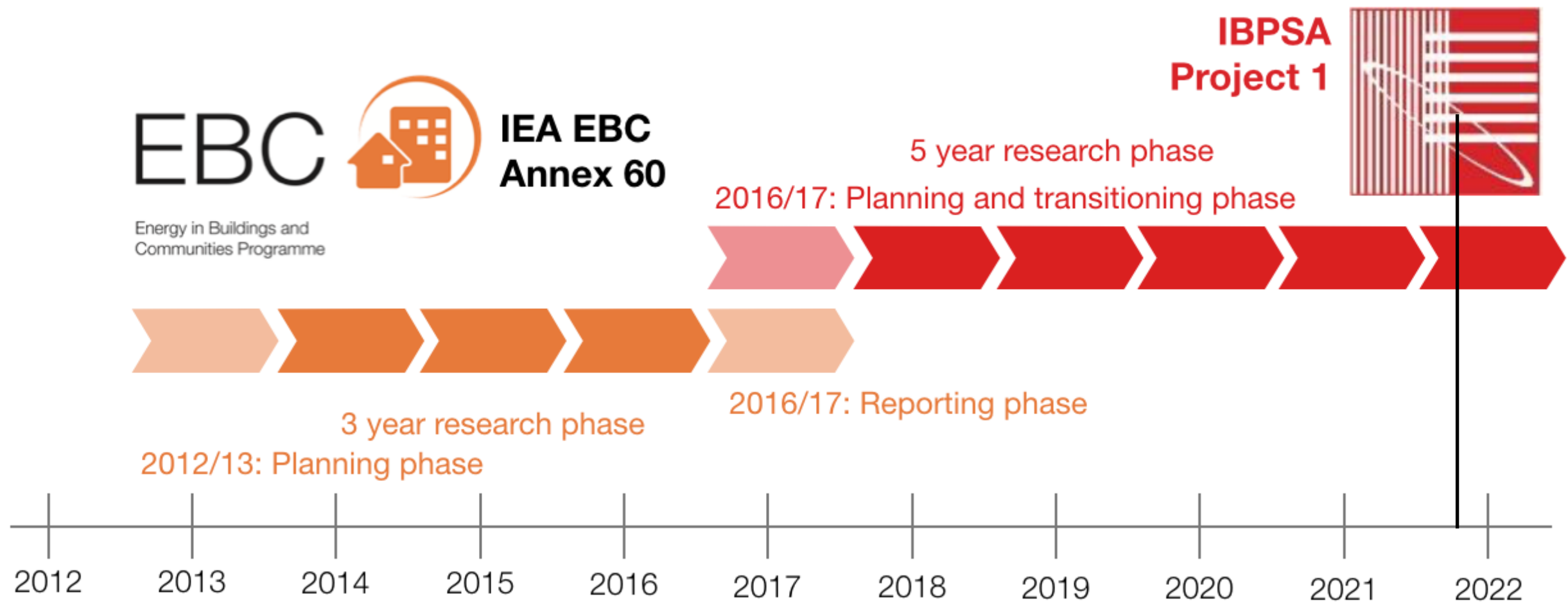
- Cash $5k per year. Thanks to

  - ENGIE Lab

Organizational participants

- minimum 0.5 full time employee per year, over the 5 year project

- contribute to 5 to 10 web-based coordination meetings annually

- attend semi-annual expert meeting, generally lasting 2 days

Individual participants

- no predetermined level of commitment, but needs to provide substantial contributions

Timeline

IEA EBC
Annex 60

EBC
Energy in Buildings and
Communities Programme

IBPSA
Project 1

5 year research phase

2016/17: Planning and transitioning phase

2016/17: Reporting phase

3 year research phase

2012/13: Planning phase

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

Announcements

American Modelica Conference

Conference: October 26 & 27, 2022

Workshops: October 28, 2022

Location: Dallas, TX

https://2022.american.conference.modelica.org/

Agenda

Day 1 - October 18, 2021

7:00 Brief overview and logistics (Michael Wetter, Christoph van Treeck, Avichal Malhotra)

7:20 Presentations from activities, recent work and overview of this meetings breakout groups (each 10 min plus 5 questions, 5 min buffer)

    WP 1.1 Modelica library for design and operation (Michael Wetter)

    WP 1.2 Model Predictive Control (Lieve Helsen and David Blum)

    WP 2.1 City Quarter Information Modeling (James O'Donnell, Gerald Schweiger)

    WP 2.2 BIM (Christoph van Treeck)

    WP 3.1 District energy DESTEST (Dirk Saelens)

    WP 3.2 Application (Alessandro Maccarini)

Overview of breakout groups.

8:55 Project 1 publications

9:00 Break

9:10 Breakout groups 1

10:00 Short break and switch to next breakout groups

10:05 Breakout groups 2

11:00 Breakout groups adjourn

Day 2 - November 15, 2021

7:00 Organization of the day (Michael Wetter and Christoph van Treeck)

7:10 Panel discussion about semantic modeling

- Marco Pritoni, LBL, USA (40 min)
- Pieter Pauwels, TUE, NL (40 min)
- Discussion (30 min)

9:00 Short break

9:05 Plenary session about BOPTEST for district energy systems (David Blum)

10:30 Concluding remarks of previous session

10:35 Planning of next expert meeting, discussion of possible continuation after summer 2022

10:55 Next steps

11:00 Adjourn