



グループ別発表 1  
発表 4

「設計ツール開発による省エネデザインへの貢献」

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# Contributing to sustainable design by developing web tool

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Graduate School of Human-Environment Studies  
Associate Professor  
Katsuya Obara

## About myself

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1988 Born In Iwate (North side of Japan)

2014 Master degree of engineering from Tokyo University

2014 Arup Hong Kong Building Sustainability Team, Sustainability Consultant

2020 Core Concept Technologies IoT/AI solution department, Senior Software Engineer

2021 Started BAUES Inc.

2021 Associate Professor at Kyushu University



Source: <https://publicdomainq.net/sydney-opera-house-0016867/>



# Background①—Japan's Roadmap to Carbon Neutral

## Milestones

- 2021 Now
- 2030 Reduce greenhouse gas(GHG) emission by 26% from 2013 levels
- 2050 Achieve net zero GHG emission



SOURCE : COPERNICUS/SENTINEL-2

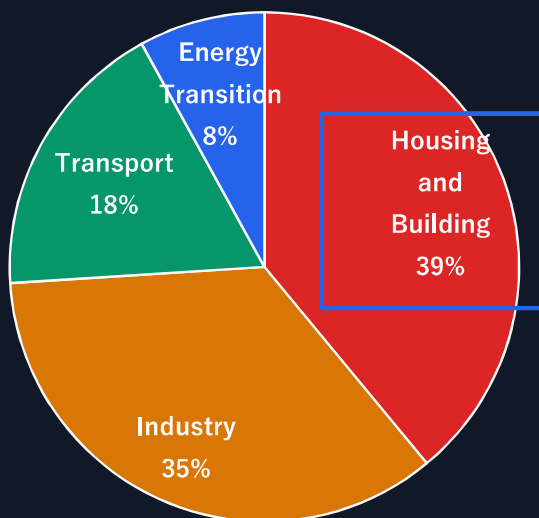


SOURCE : REUTERS



# Background②— CO2 emission in building sector

CO2 emission breakdown in 2013



**Building is contributing to large amount of CO2 emission**

Source : <https://www.env.go.jp/earth/ondanka/ghg/2020.html>

# Background③—Building Energy Saving Law

## Energy Saving Calculation for new building

	Non-residential	Residential
Big scale (2000m <sup>2</sup> ~)	Need to comply the standard	Submitting documentation is required
Middle scale (300m <sup>2</sup> ~2000m <sup>2</sup> )		
Small scale (~300m <sup>2</sup> )	Explanation to client is needed	

From 2025, need to comply the standard

# Background④

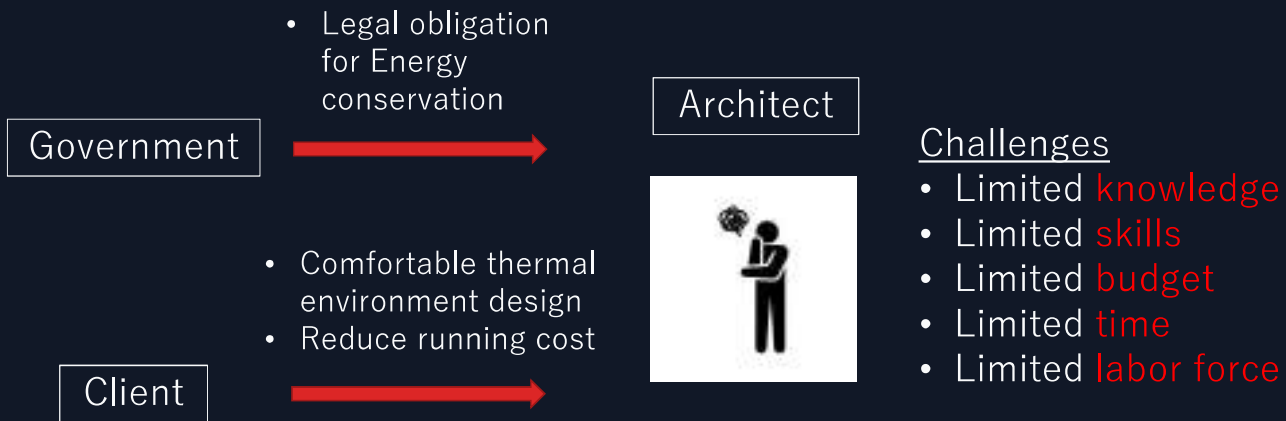
## Proficiency of Energy saving calculation by Builder and architect (2018)



Source : [https://www.mlit.go.jp/jutakukentiku/shoenehou\\_assets/img/library/R1gaiyousetumeikaitext.pdf](https://www.mlit.go.jp/jutakukentiku/shoenehou_assets/img/library/R1gaiyousetumeikaitext.pdf)

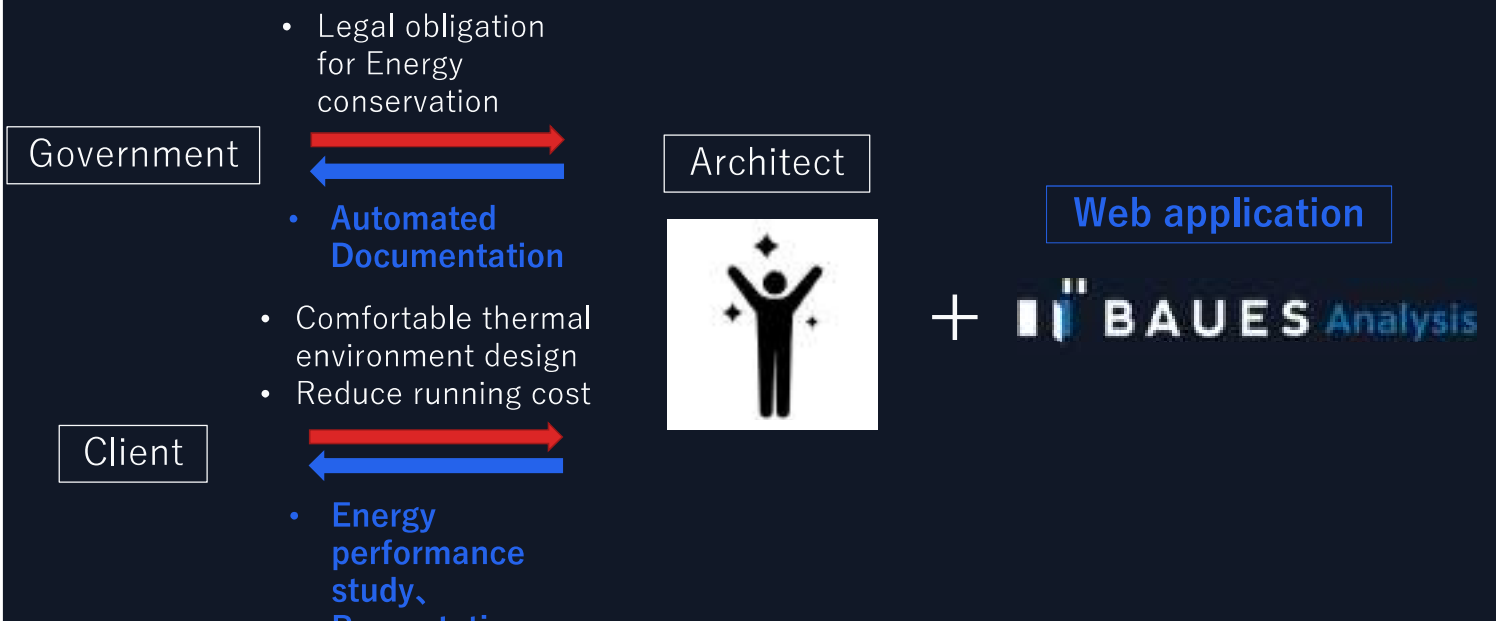
# The problems we want to solve

We want to help architect to embrace sustainable design in their decision making by providing easy-to-use tools.



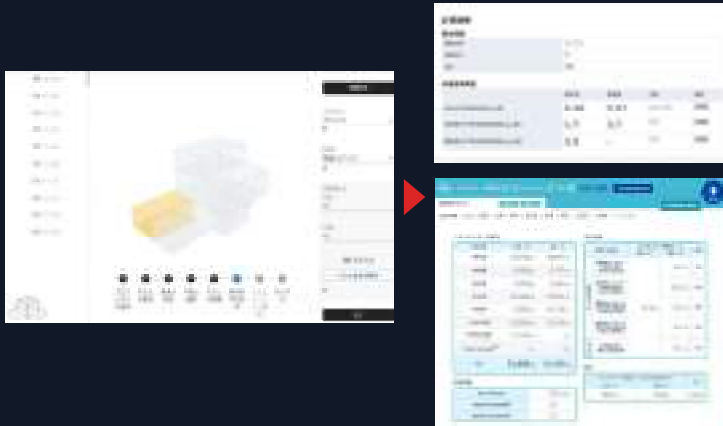
# The solution we are building

**Application will support sustainable design and documentation**

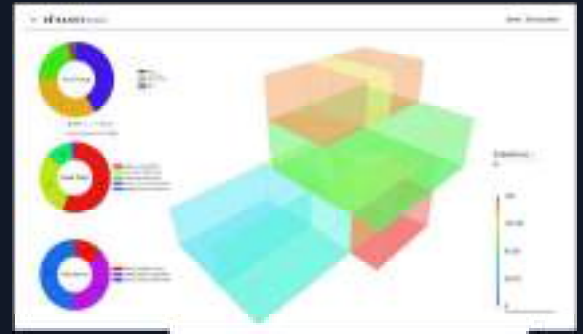


# Service of BAUES Analysis

## 1. Documentation work support



## 2. Simulation tools to improve sustainable design



Beta version is already launched.  
 (<https://analysis.baues.io>)  
 Official version will be launched by the end of this year

Beta version will be ready by the end of this year

# Comparison against conventional workflow



## Beta version demo



<https://analysis.baues.io/en>

## Conclusion

Connect  
Engineering  
Empower  
Everyone

### Member



**Keita Kakemoto**

CEO  
Structure Engineer, Software Engineer



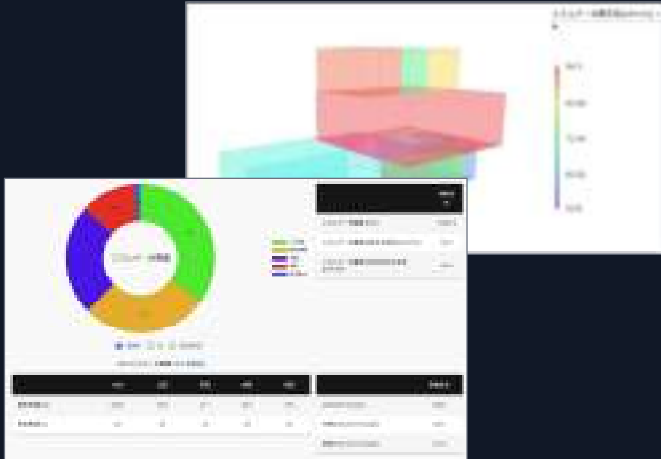
**Katsuya Obara**

Technical Advisor  
Associate Professor in Kyushu University,  
Environment Engineer, Software Engineer

Thank you

## BAUES Analysis

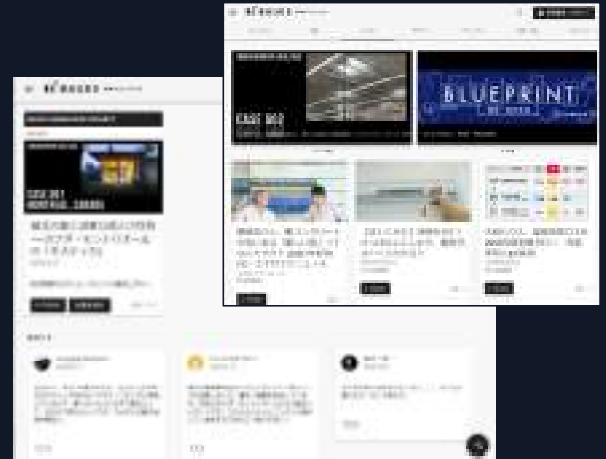
Web service to help sustainable design



<https://analysis.baues.io>

## BAUES

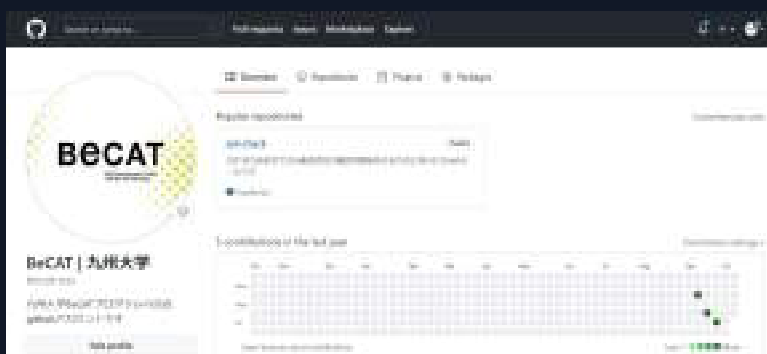
Social media for construction industry



<https://baues.io/>



## Promotion



Github account  
(<https://github.com/becat-oss>)



First one is web tool to check ZEH achievement

HP for BeCAT (Built Environment Center with Art & Technology)  
<https://becat.kyushu-u.ac.jp/en/>