AIA 2030 Design Data Exchange (DDx) & Deep Design Data Portal (D3P)

Energy Technologies Area — BERKELEY LAB
U.S. DEPARTMENT OF ENERGY

Background and Problem Statement
Need "deeper" data on building design

- **DDx:** An online portal that implements AIA 2030 Commitment reporting since 2014. The 1,000+ signatory A/E firms report annually on their project portfolio for the year (20,000+ projects, 3B+ GSF. Firms spend significant effort collecting data and want improved data collection processes and added value (insight) from the data they do report.

- **D3P:** Firms that collect more detailed data in-house are interested in mining that data (and data from other firms) for additional insight on methods to achieve deeper energy and carbon savings.

- **This project:** Working with firms to create a deeper design data set and link back to DDx for additional feedback and insight.
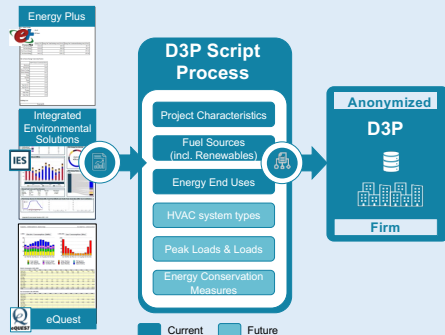
Part 1: D3P + Script Process

- **D3P** is an online portal for project (building) design data. D3P includes scripts that can extract the necessary data from the output reports of popular energy modeling programs like EnergyPlus, DOE-2.2, and IES Virtual Environment. The D3P implements versioning so project data can be shared at multiple stages in the design.

- **Initial Target Audience:** A group of large A/E firms that also report to the AIA 2030 DDx.

- **Goal:** Make it easier for firms to collect deep design data on their energy modeled projects, and utilize it in multiple ways, such as DDx reporting, and to improve their design process and outcomes.

- **Format:** Online portal and automated scripts.
  - Each firm has their own account, which contains the detail of their shared projects.
  - Firms will be able to access an anonymized dataset for comparison and benchmarking.

D3P Script Process Diagram

The "Deep Design Data" fields are extracted from energy modeling reports, organized in a consistent way, and added to the dataset.
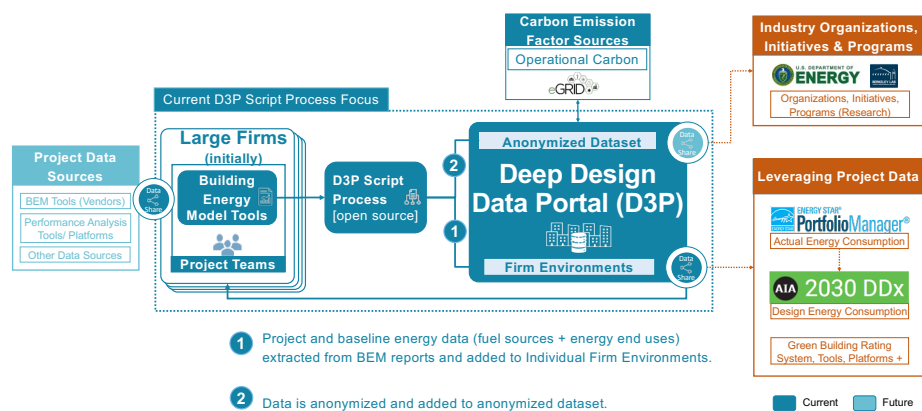

Contact Information

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D3P Project Upload

BEM Projects Intake Form
Walks you through the process for single or multiple projects.

Step 1: Select BEM Project Upload Type*
Single Upload

BEM Report Type*
The report type influences the fields displayed
Select a Report Type

Project ID (Firm Mapping)*
Your Project ID will be mapped to the Unique ID generated (for your use only)

Baseline BEM Report
Drag and drop a file or click to upload

D3P Data-Sharing Ecosystem
The multi-year project vision for D3P, which includes linking to the AIA 2030 DDx, as well as other tools and data sources

1 Project and baseline energy data (fuel sources + energy end uses) extracted from BEM reports and added to Individual Firm Environments.

2 Data is anonymized and added to anonymized dataset.

Project Team and Partners

Project Lead
Sustainable IQ — working to raise the performance bar

Project Partners
BERKELEY LAB — Lawrence Berkeley National Laboratory
Model Efficiency

AIA 2030 DDx Partners
AIA
ENERGY STAR PortfolioManager

AIA 2030 DDx Reporting ('21)
Firms: 417
Projects: 20,652
GSF: 3.1 billion

D3P Firm Partners (Note: all the firm partners also report projects to the AIA 2030 DDx)

HOK · nbbj · TLC ENGINEERING SOLUTIONS · atelier ten · Page/ · PERKINS EASTMAN · SOM · DLR Group

D3P Script Process – Progress

Progress to Date
- TAG firms using a proof-of-concept online portal to upload projects and test the script process
- Script process extracts energy project data from six report types from three BEM tools
- Single and multi-project uploads.

Plans for FY23
- Expand project data collection process with TAG
- Analyze overall anonymized dataset to demonstrate use cases.
- Incorporate additional capabilities into the D3P script process and environment
- Conduct working sessions with individual firms and groups of firms
- Continue developing D3P specifications

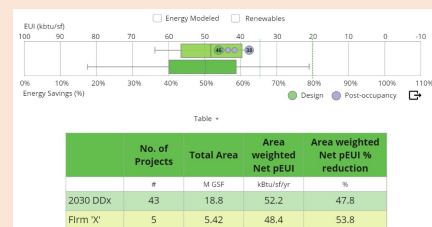## Part 2: AIA 2030 DDx Enhancements

Goal: In parallel, continue to add enhancements to improve data quality and completeness, leverage existing data for benchmarking, extend reporting to carbon metrics, and link to external data sources for tracking post-occupancy energy use.

1. Operational carbon calculations
2. Research and benchmarking capabilities
3. Link to ENERGY STAR Portfolio Manager
4. Improve data quality

AIA 2030 DDx – Progress

Progress to Date:
- Enhancements defined
- Software developer procurement is in progress

Plans for FY23:
- Enhancements incorporated into the DDx prior to the next reporting cycle (Jan-Apr '24)

	No. of Projects	Total Area	Area weighted Net pEUI	Area weighted Net pEUI % reduction
	#	M GSF	kBtu/sf/yr	%
2030 DDx	43	18.8	52.2	47.8
Firm 'X'	5	5.42	48.4	53.8

AIA 2030 DDx Mock-up for Research & Benchmarking enhancements. Provides the ability to assess both design and actual energy for projects.