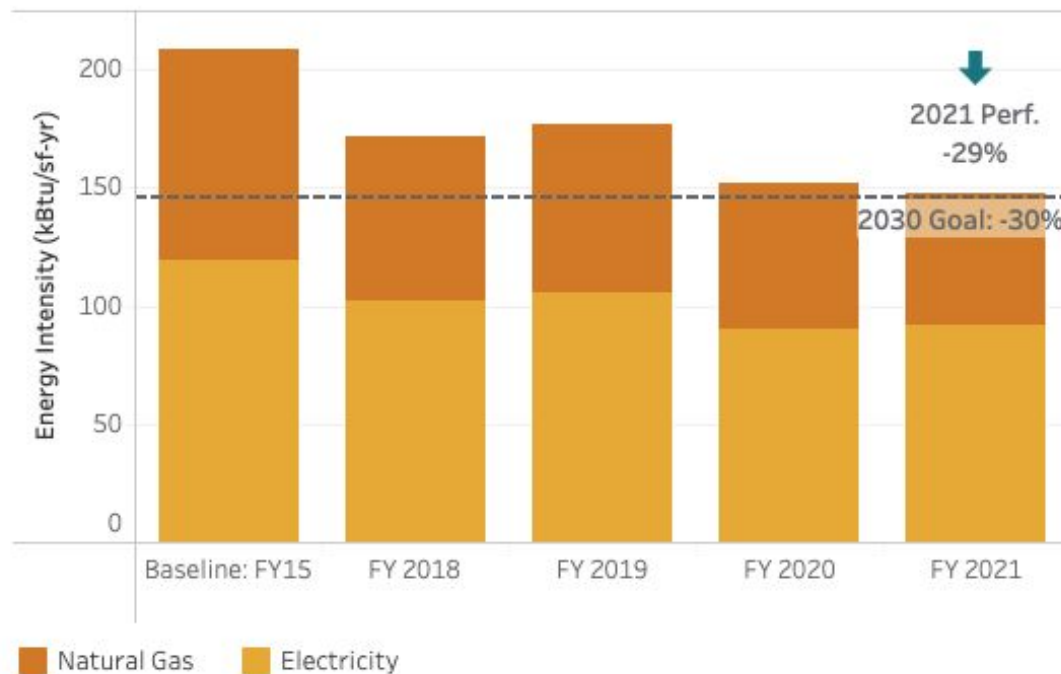

Sustainability Update and the Net-Zero Lab Initiative

 **SUSTAINABLE** BERKELEY LAB • sbl.lbl.gov

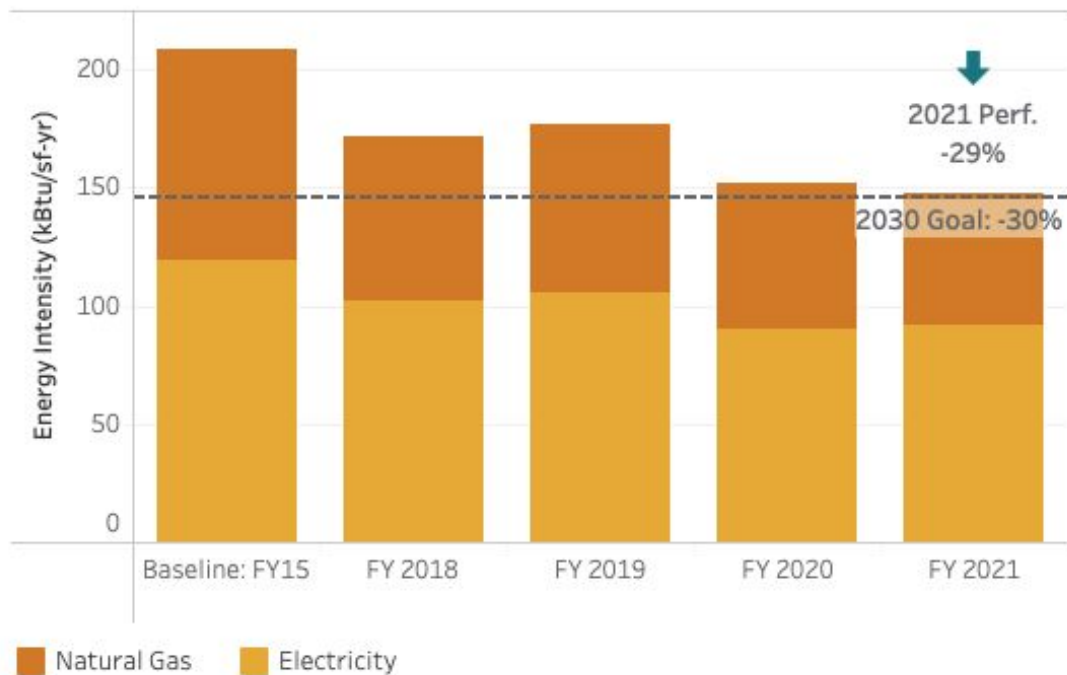
We've built a strong foundation of efficiency

Energy consumption per square foot of the general building stock
is **29% lower** than in FY 2015.



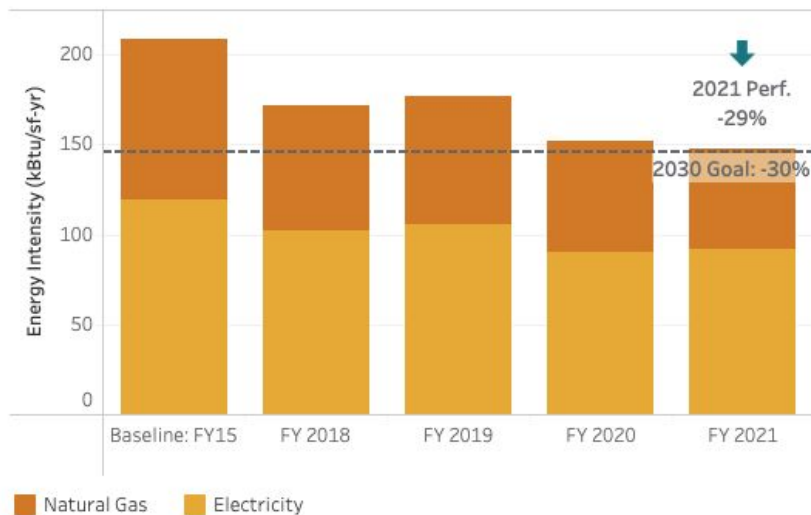
We've built a strong foundation of efficiency

Energy consumption per square foot of the general building stock
is **29% lower** than in FY 2015.



The Lab is
consuming **34%
less** natural gas
than in FY 2015.

How are we getting these savings?

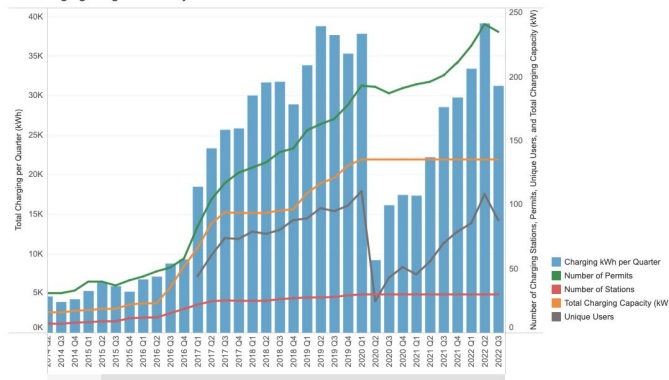


- **Ongoing commissioning** - making our buildings work better
- **New construction** - that consumes 1/3rd the energy of the buildings they replace and eliminates use of natural gas
- **Analytics** - to find, generate and maintain savings
- **Institutionalized excellence** - ISO 50001 certification to ensure that energy and water management practices strategic, effective, and persistent

Other sustainability accomplishments

- Built a strong waste diversion program - with recycling and composting
- We've made significant progress on water conservation
- Established a strong EV charging network, with plans for growth

EV Charging Program Activity

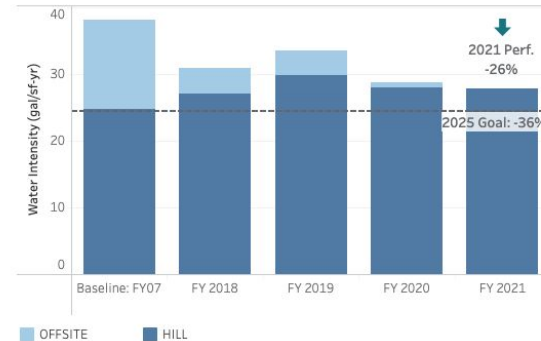


Note: Charging data will be scaled from existing data until a quarter is complete.



Summary of Water Performance

Water consumption per square foot as of FY 2021 is **26% lower** than in FY 2007.

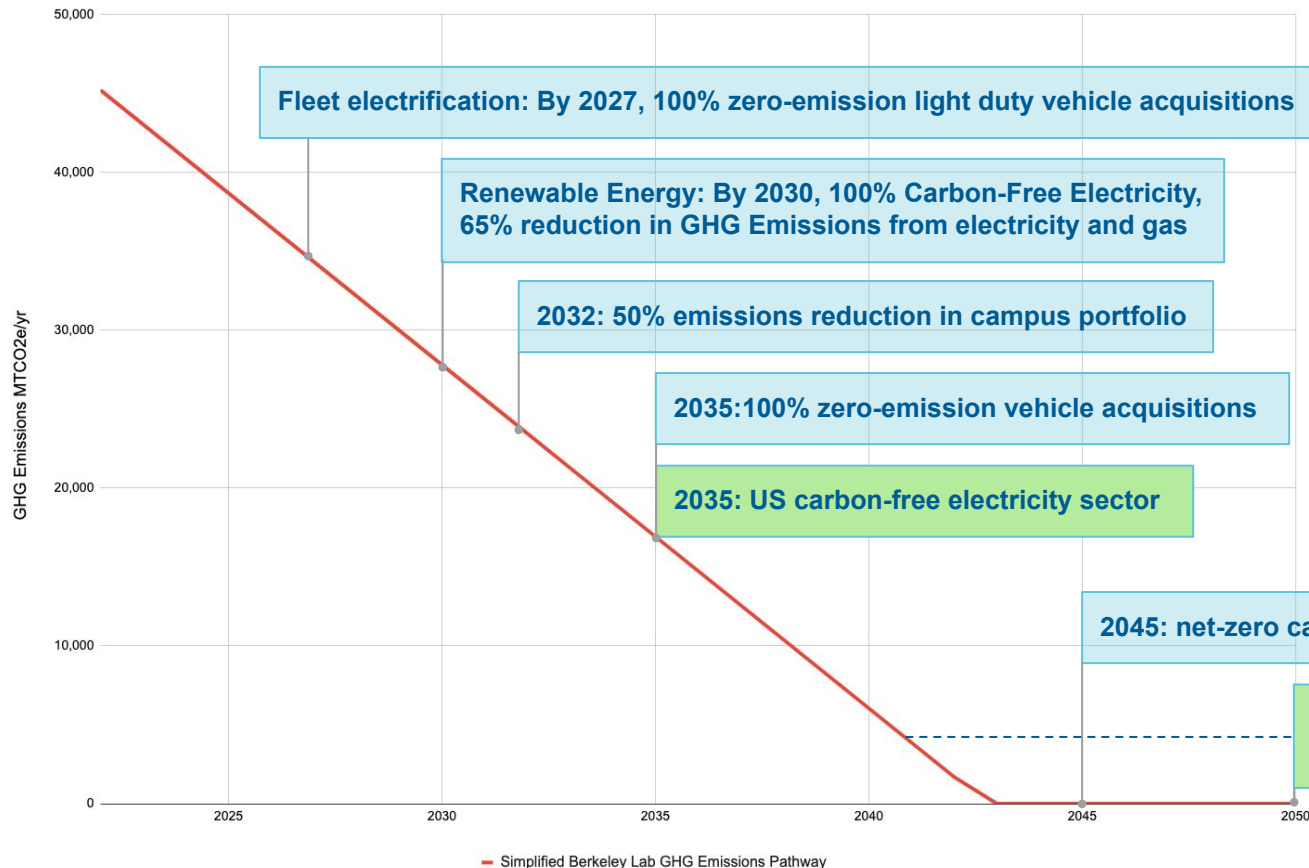


Federal “Net-Zero” Executive Order 14057

Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

- Sets all federal sites on a firm path to decarbonization by no later than 2045, with many significant interim milestones
- Key initiatives include
 1. **Renewable Energy:** Transition to 100 percent carbon-free electricity (CFE) by 2030
 2. **EVs:** Transition to a fully-electric federal fleet, phased in from 2027-2035
 3. **GHG Reduction:** Deep reductions in emissions by 2032, net-zero campus portfolio by 2045
 4. **Procurement:** Zero emissions from procurement
 5. **Organizational Change:** Engage/educate the federal workforce, incorporate climate justice

Berkeley Lab Pathway to Net-Zero



BERKELEY LAB PERFORMANCE TARGET

- Reduce greenhouse gas emissions annually by 3.6% of a 2015 baseline to achieve net-zero greenhouse gas emissions before 2045

MEET FEDERAL MILESTONES

- Demonstrate a leadership position in decarbonization
- Consistent with the international consensus to stay below 1.5C warming pathway (demonstrated by alignment with [SBTi Net-Zero Standard](#))

We are well-prepared for this effort

Overall greenhouse gas emissions are **60% lower** than in FY 2015.



But there is a lot left to do



Renewable Energy

An example 50 MW solar array ([source](#))

Electrification

Part of the heat pump heating plant at B91 (Raph Vitti photographer)



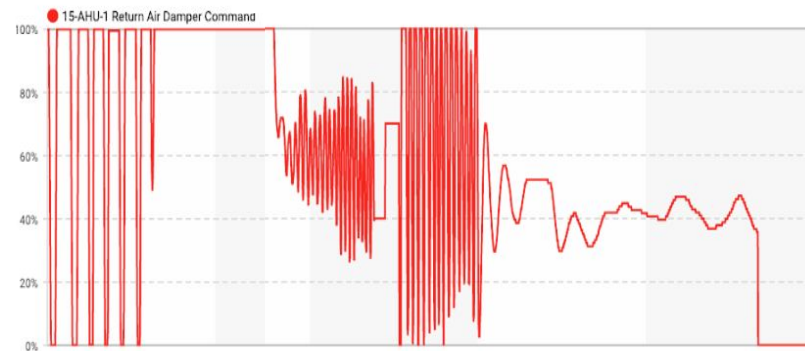
Commutes and Business Travel



Thor Swift photographer



Getty Images



Living Lab

From Raph Vitti. See Pritoni et al, 2021: [From fault-detection to automated fault correction: A field study](#)

Net-Zero Planning Efforts

- **Net-Zero Lab Visioning Team**

- Over 30 volunteers from 21 divisions across the Lab
- Exploring solutions to reduce both reported and unreported GHG emissions
- First-line reviewers of a draft Net-Zero Plan

- **Natural Gas Transition Team**

- A team of seven from Facilities Engineering and Sustainable Berkeley Lab
- Detailed electrification planning

- **Capital Planning**

- Representatives from Planning and Facilities
- Working to incorporate electrification into the Lab's capital plan

Contact

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Contact | sbl@lbl.gov

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See [Plan for a Sustainable Berkeley Lab](#)



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