Smith College Geothermal Energy Project

The largest capital project in Smith College's history, replacing a campus-wide fossil-fuel steam heating system with a networked geothermal district energy system to achieve carbon neutrality by 2030.

LOCATION	PROJECT TYPE	CURRENT STATUS
Northampton, Hampshire County, Massachusetts	**College**	**Under construction; Phase 1 (North District) operational as of Fall 2024**

LEAD ORGANIZATION	SYSTEM SCALE	ESTIMATED COST
Smith College (self-financed)	**93 buildings, 2.7M GSF, 3 energy districts, 800-ft closed-loop boreholes**	**$210M gross budget (self-financed); 30-yr NPV: $279M vs. $340M BAU**

KEY OBSTACLE

Mill River directional bore permitting for Central District; multi-year construction disruption

PROJECT DESCRIPTION

Smith College is replacing its aging fossil-fuel-fired steam heating system with a networked geothermal district energy system, the largest capital undertaking in the college's history.[1,2] The project broke ground in May 2022 and will serve 93 buildings (approximately 2.7 million GSF) across three energy districts, using closed-loop boreholes drilled to roughly 800 feet and powered by renewable electricity.[1,2,3] The North District, with 72 boreholes beneath Davis Meadow, began heating buildings in Fall 2024.[2] The Central District will require a directional bore under Mill River near the Paradise Pond dam.[2]

When complete in 2028, the system is expected to cut campus carbon emissions by 80 to 90 percent, reduce water use by more

TIMELINE

2019: First test well drilled (McKahn)

March 2020: District Energy Master Plan completed

May 2022: Board of Trustees approval and groundbreaking

Fall 2024: North District operational

2028: Full project completion expected

POLICY ANCHOR

than 10 percent, and help the college meet its 2030 carbon neutrality commitment.[1,3] Smith is recognized as the first college in New England to pursue networked geothermal at this scale and has been highlighted by the UN Framework Convention on Climate Change as part of its Race to Zero Emissions campaign.[2]

KEY ACTORS AND GOVERNANCE

The Board of Trustees formally approved the project in May 2022, with Board Chair Alison Overseth '80 and President Kathleen McCartney providing institutional leadership.[1] Internal administrators leading the work include David DeSwert, Beth Hooker, Charles Dougherty, and colleagues in facilities and sustainability.[1,2,4,12] Salas O'Brien serves as lead design engineer (Ian Davies), and Bond Construction (Justin Nash) is construction manager.[4,12] The 2019 pilot test well by Professor Denise McKahn is cited as the project's technical origin.[2] Northampton's January 2025 fossil-fuel-free building code update and the city's October 2024 designation in the Commonwealth's Municipal Fossil Fuel Free Building Demonstration Program provide broader municipal policy context.[5,6]

FUNDING AND COSTS

The $210 million gross budget and the 30-year lifecycle cost comparison ($279M geothermal vs. $340M business-as-usual) are drawn from the college's July 2024 IRA tax credit materials.[1,3] IRA eligibility details, including prevailing wage, domestic content, energy community bonus credits, and begin-construction determinations, come from the same internal presentation.[3] FY2024 asset figures ($3.8B total assets, Phase 1 placed in service) come from Smith's financial statements.[7]

Additional funding context includes building permit revenue recorded in Northampton City Council meeting minutes, and planned utility-side support through the Massachusetts APS Renewable Thermal program and National Grid's custom incentive offerings, both referenced in the 2020 District Energy Master Plan.[4,8]

PERMITTING AND APPROVALS

Massachusetts UIC registration requirements (310 CMR 27.00), the role of Registered Well Drillers, and Local Board of Health approval requirements are drawn from a 2014 legal analysis by Nutter McClennen & Fish attorneys at an ACREL conference.[9] The Mill River directional bore requirement and its associated permitting complexity involving the Conservation Commission, Army Corps, and Chapter 91 licensing are documented in the December 2024 Smith College news coverage.[2] MEPA considerations reference the same

Board of Trustees vote (May 2022); 2030 carbon neutrality goal; Second Nature Carbon Commitment signatory; Northampton Municipal Fossil Fuel Free Building Demonstration Program (January 2025).[1,5,6,10]

NEXT STEP

Complete Phase 2 (Quad District) through Summer 2025; begin Phase 3 (Central District) including Mill River directional bore; finalize IRA tax credit applications.

Nutter McClennen legal analysis.[9] IRA compliance tracking references the July 2024 internal presentation.[3]

COMMUNITY ENGAGEMENT AND EQUITY

The project grew out of the college community itself. Students, staff, faculty, and trustees spent years laying the groundwork through the Study Group on Climate Change and the District Energy Working Group before construction began.[1] Smith also formalized its commitment through the Second Nature Carbon Commitment, which requires signatories to develop a climate action plan, set a target date for neutrality, and report greenhouse gas emissions annually.[10] When the board voted in May 2022, David DeSwert noted the project had generated a rare level of consensus across the institution, including among faculty, which is unusual for infrastructure of this scale.[11]

Once construction began, CEEDS and the Botanic Garden restored Davis Meadow above the North District borefield with native plantings meant to increase biodiversity and sequester carbon, tying the restoration into Smith's broader Landscape Master Plan.[2] The college has hosted visits from the Hadley School District and has been in conversations with MIT, Vassar, and local K-12 schools considering similar transitions.[2] Construction has not been seamless: the soccer pitch was relocated, outdoor tournaments were paused, trails and roads were closed, and roughly 70,000 cubic yards of soil have been moved, with the college issuing regular online updates throughout.[2] At the city level, Northampton's January 2025 unanimous vote to ban fossil fuels in new construction was framed as an equity issue, with Ward 7 Councilor Rachel Maiore citing the disproportionate impact of climate change on vulnerable and poor communities. The council carved out an exception for buildings connected to a geothermal network like Smith's, a direct acknowledgment of the project's role in making the policy workable.[5]

WHY THIS CASE MATTERS

Smith is one of the few campus geothermal projects that has moved from planning into operation, while most peer institutions remain in feasibility or planning phases.[1,2,4] Years of quiet groundwork made that possible: McKahn's 2019 test well gave the administration real data, and the 2020 MEP master plan gave trustees something concrete to vote on, so by the May 2022 approval the technical risk had been substantially reduced.[2,4] As a nonprofit, Smith is also navigating IRA direct-pay and transferability provisions that earlier campus geothermal projects never faced, and its approach will likely become a reference point for peer institutions.[3] The ripple effects are visible: Northampton's fossil-fuel-free building code

> was politically feasible in part because Smith's network existed, neighboring schools and municipalities are actively modeling on Smith's experience, and UN recognition signals relevance well beyond western Massachusetts.[2,5]

Sources

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Sources still needed: MassDEP UIC registration filings, Conservation Commission Order of Conditions for the Mill River crossing, and Chapter 91 license (if applicable); specific IRA tax credit dollar amounts; the full MEP Associates District Energy Master Plan (only summary is public); Board of Trustees formal vote documentation or resolution; National Grid custom incentive agreement.