King County

REQUEST FOR INFORMATION

Harborview Medical Center Energy District

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RFI responses are due by Monday, May 5, 2025, at 5:00 pm, PT

SECTION 1 Request for Information Scope

Introduction

Harborview Medical Center (HMC) is exploring options to implement a district energy system to serve the campus and, possibly, connect to the broader neighborhood. King County invites qualified energy developers, consultants, owners, operators, and other related experts to provide information for the County to consider regarding designing, building, operational management and maintenance, and business models for this system.

Purpose

The purpose of this RFI is to gather industry information that will inform:

- Strategic planning
- Extent and method of off-campus connections
- Ongoing preliminary systems design
- Governance models included strategic and operational decision-making processes
- Evaluation of procurement methodologies, available and preferable financing structures, ownership structures, and operating approaches
- Required possible future procurement activity

Vision

King County's vision is to establish a state-of-the-art, phased, and scalable district energy system that will:

- Enhance operational resilience, with a focus on adaptability and reliability for critical healthcare services, with a particular focus on seismic risk
- Achieve decarbonization goals in line with the County's Strategic Climate Action Plan
  - Actions that reduce regional greenhouse gas emissions
  - Prepare for the impacts of climate change
  - Support community resilience
  - Develop green career pathways for King County residents
- Offer long-term financial and operational benefits to both HMC and community partners
- Meet building energy and emissions performance standards
- Renew aging infrastructure and improve maintainability
- Support community decarbonization or other community resilience

Background Information

HMC is a comprehensive quaternary level care facility acting as the only level 1 trauma center for Washington, Alaska, Montana, and Idaho. Its primary mission is to provide high-quality healthcare to all residents, the most vulnerable of residents of King County. It is crucial to ensure that this facility remains operational both under regular conditions and in the face of natural disasters or potential pandemics.

HMC facilities have continuously been expanding and changing to accommodate the ever-changing cities and counties it serves, and with this, the demand for a stable energy infrastructure capable of supporting the continued growth of this critical regional facility. In 1930, the original Center Tower was constructed. This was quickly followed by the construction of Harborview Hall. The East Hospital and East Clinic, as well as the West Hospital and West Clinic, were built with funds from bond issues in 1955, 1966, 1976, and 1988. A 2000 bond measure allocated funds for the 2008 Norm Maleng Building and 2009 Ninth & Jefferson Building construction.

The existing campus covers 13 acres and comprises various buildings, accommodating inpatient and outpatient healthcare services, offices, laboratories, and emergency and surgery departments, among others.

Harborview Bond Program

In 2020, King County voters approved a $1.74 billion bond measure to support a Strategic Facilities Plan for HMC. Scope for this bond will result in:

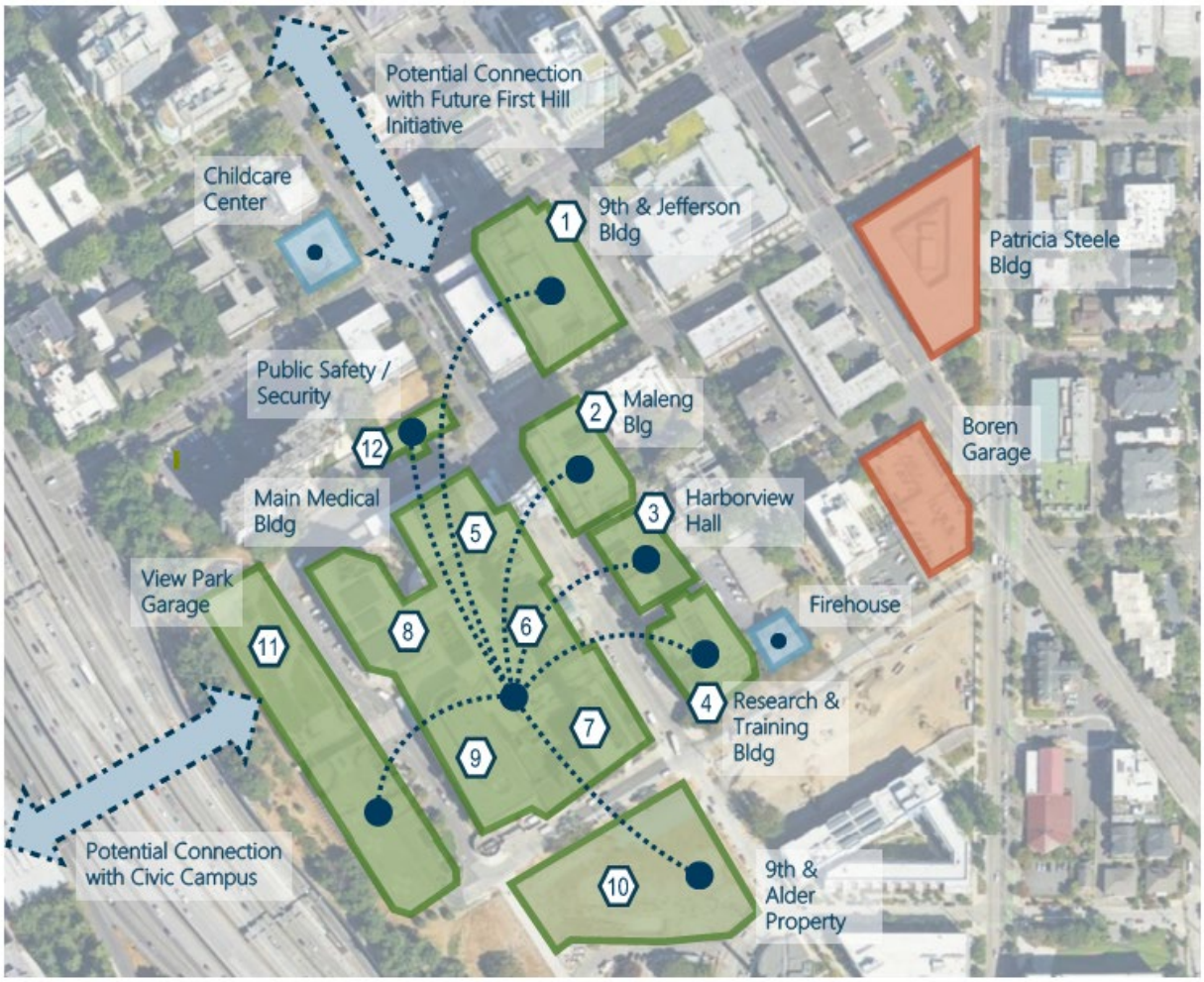
1. Construct a new high-rise inpatient hospital tower
2. Construct supporting infrastructure
3. Renovate essential hospital service spaces located in older hospital facilities
4. Renovate County department spaces located in older hospital facilities

The Harborview Bond Program (HBP) is currently considering several different options for how to proceed with the bond scope. The goal of this RFI is to explore developing energy structures that support and achieve the original scope of the bond.

The expected location for the new inpatient tower is where the current northern View Park Garage 1 stands, as shown at location #11 in the campus map below. The County recently purchased the Ninth & Alder property on the south side of campus, shown as location #10 in the campus map below. A new Medical Office Building (MOB) of approximately 900,000 gross square feet is being considered for the Ninth & Alder property (location #10).

Campus Map

The following diagram shows the campus layout.



First Mover:
Include in district analysis

Conditional:
Hold for potential future inclusion in nearby district

Standalone:
Consider standalone efficiency and electrification

Note:
Potential exists to connect to others on First Hill and to the Civic District.

- Include in District
- Hold for potential future District connection

Building Details

The following table summarizes building information. Additional information on existing building systems is provided in Appendix A.

	KEY NUMBER	BUILDING AREA [S.F.]	YEAR OF ORIGINAL CONSTRUCTION	HEATING CAPACITY [MBH][3]	COOLING CAPACITY [TONS][4]
9TH & JEFFERSON[1]	1	440,000	2008	16,600	1,350
MALENG BUILDING[1]	2	230,000	2007	11,500	1,100
HARBORVIEW HALL	3	91,000	1929	3,100	150
R&T BUILDING	4	179,000	1996	13,000	900
EAST HOSPITAL[1]	5	189,000	1974	8,400	600
CENTER TOWER	6	236,000	1930	13,500	800
EAST CLINIC	7	121,000	PRE 1950S	5,100	400
WEST HOSPITAL[1]	8	275,000	1993	9,900	800
WEST CLINIC	9	179,000	1993	6,600	500
9TH & ALDER	10	600,000	EST 2026	12,100	600
NEW PATIENT TOWER[1]	11[2]	660,000	EST 2028	17,000	1,500
PUBLIC SAFETY BUILDING	12	_[5]	_[5]	_[5]	_[5]
TOTAL	**-**	**3.2M**	**-**	**116,800**	**8,700**

1. BUILDING MUST BE CONSTRUCTED TO A SEISMIC IMPORTANCES FACTOR OF 1.5 PER OCCUPANCY CATEGORY DEFINED IN ASCE 7-05.
2. NEW PATIENT TOWER IS ASSUMED TO BE LOCATED ON THE VIEWPARK GARAGE PROPERTY.
3. HEATING LOAD REPRESENTS THE AMOUNT OF HEATING REQUIRED TO HEAT BUILDINGS AS SYSTEMS CURRENTLY EXIST.
4. COOLING LOAD INCLUDES ASSUMED COOLING WILL BE ADDED TO BUILDINGS THAT CURRENTLY HAVE NONE.
5. PUBLIC SAFETY BUILDING AS EXISTS WOULD NOT BE CONNECTED TO DISTRICT ENERGY SOLUTION. BUILDING WOULD ONLY BE INTEGRATED INTO SOLUTION AS THE FUTURE WALTER SCOTT BROWN BUILDING.

SECTION 2 Information Requested

King County is soliciting technical and business expertise to understand what it currently believes are the major components that should be considered in the creation and operation of an energy district. Please provide written responses covering the topics described below. Respondents are not obligated to reply to each category and are welcome to include additional information that they deem relevant. References to real world examples are encouraged.

1. **Technical Design**
   - What design principles and technical district energy approaches, or combination of approaches, should the County consider to enable it to achieve its' Vision described in SECTION 2 Scope of the RFI?
   - What considerations should the County give to scale and scalability?
   - At what scale (campus, neighborhood, etc.) should the County develop this system?
   - How might the County integrate with other and off-campus energy sources?
   - What considerations should the County give to in-building work necessary to connect to a district energy system?
   - What broader benefits, aside from operational continuity of HBC, would this approach(es) provide King County and the community?
   - What are the risks and benefits of the described approaches, and how might the County manage those risks?
   - What regulatory approvals or permits will be required for the ideas presented?
   - Do you anticipate any regulatory or permitting challenges for the ideas presented, and what should the County consider to manage those challenges?
2. **Build**
   - What construction approaches and procurement models do you recommend that the County consider to support the solution you are recommending?
3. **Operations and Maintenance**
   - What operations and maintenance approaches and procurement models do you recommend that the County consider supporting the solution you are recommending?
   - Describe key performance indicators, maintenance schedules, emergency response plans, and other factors the County should consider to ensure uninterrupted service.
4. **Business**
   - Describe options that you would recommend the County consider related to:
     1. Ownership and operating models
     2. Agreement types and related considerations, such as key terms, limitations, duration, and pricing structures

3. Financial approaches, including funding sources and finance structures

- How might the County procure those options?
- What sorts of firms or teams might be interested in the above options? How might teams be structured?
- How might the recommended technical, build, operations, and maintenance (O&M) approaches influence the business model, and how might the business model affect those categories?
- How might the County identify, manage, and/or balance risks across all parties involved?

5. **Other**
   - What else should the County consider in any of the above categories and/or beyond?
   - In your experience, what is the best method for engaging the community related to the solution you are describing and ensuring that any feedback obtained is representative of the diverse nature of the community that HBC serves.
6. **Your Firm**
   - Provide an overview of your firm's experience related to the above categories (i.e., designing, building, operating and maintaining, creating, managing, and operating business models), and your preferred approach to those categories.
   - What role would benefit from the unique strengths and experience of your firm and that your firm would potentially be interested in fulfilling in the future should the County move forward with the creation of an energy district?
   - In your experience, what has been the best sourcing method that you have been involved with that ensures that the skills, expertise, and knowledge for each role are awarded to a supplier who can provide the highest value to the County?
   - Provide examples of similar projects you have undertaken, particularly for healthcare or critical infrastructure clients.

Responses

Please structure your responses according to the sections outlined above and **limit your response** to 20 pages, not including cover pages, cover letter, and section tabs. Additional supporting materials, such as case studies, diagrams, or financial summaries, may be attached as appendices.

Responses must be submitted electronically by 5pm PT on Monday, May 5, 2025, to HarborviewBondProject@KingCounty.gov with subject line "Energy District RFI". For informational inquiries, please contact Sarah Calvillo Hoffman at (206) 477.9447 or sarah.calvillohoffman@kingcounty.gov.

SECTION 3 Appendix A Facility Information

Below is a high-level summary of the heating and cooling related systems at King County Harborview Medical Center (HMC).

1. **Research and Training Building**
    a. Heat and Cooling Sources: Heating water supply is provided through steam heat exchangers. Chilled water is provided by chillers.
2. **Main Medical Building**
    a. East Hospital
        i. Heat and Cooling Sources: Heating water supply is provided through steam heat exchangers. Several reheat loops (serving terminal reheat Variable Air Volumes (VAVs) and perimeter radiators) and preheat loops (serving Air Handling Unit (AHU) coils) exist. All heating water loops are either 180°F/160°F or 160°F/140°F. Chilled water is generated by two rooftop air cooled chillers and one basement water-cooled chiller/rooftop cooling tower (total 1000 tons). Chilled water system supplies the East Hospital and Center Tower. The system is interconnected to the West Hospital/West Clinic system for redundancy.
        ii. Distribution: AHUs supply air to VAV boxes with hot water reheat on all floors of the building.
        iii. Ventilation: Aside from a few small recirculating units with minimum Outside Air (OA) setpoints, AHUs are 100% OA. A heat recovery runaround loop recovery energy from exhaust air to preheat AHU OA air.
        iv. Domestic Hot Water: Steam to hot water heat exchangers
    b. Center Tower
        i. Heat and Cooling Sources: Heating water supply is provided through steam heat exchangers. Several different reheat loops (serving terminal reheat VAVs) and preheat loops (serving AHU coils) exist. All heating water loops are either 180°F/160°F or 160°F/140°F. Chilled water is supplied from East Hospital and utilized in chilled water coils in AHUs. Two small air-cooled chillers are installed on the lower roof to serve IT loads. One small cooling tower on the ground level was installed to serve supplemental space loads. Perimeter radiators utilize direct steam for heating in some spaces.
        ii. Distribution: AHUs serve supply air to VAV boxes with hot water reheat on most floors of the building.
        iii. Ventilation: Aside from a few small recirculating units, AHUs are 100% OA. A heat recovery runaround loop recovers energy from exhaust air to preheat AHU OA air.
        iv. Domestic Hot Water: Steam to hot water heat exchangers
    c. East Clinic
        i. Heat and Cooling Sources: Heating water supply is provided through steam heat exchangers. Several different reheat loops (serving terminal reheat VAVs) and preheat loops (serving AHU coils) exist. Heating hot water loops are all 180F/160F. No chillers in this building. Several smaller split rooftop condensers serve individual AHUs. Chilled water is supplied to East Clinic from the West Clinic chilled water system.
        ii. Distribution: AHUs supply air to VAV boxes with hot water reheat on all floors of the building.
        iii. Ventilation: AHUs are 100% OA. A heat recovery runaround loop recovers energy from exhaust air to preheat AHU OA air.
        iv. Domestic Hot Water: Steam to hot water heat exchangers
    d. West Hospital & West Clinic
        i. Heat and Cooling Sources: Heating water supply is provided through steam heat exchangers. Two preheat loops serve coils in AHUs and one Reheat Loop serves all terminal reheat vavs. All heating hot water systems are supplied at 160F/140F. Two sub-

basement chillers (with rooftop cooling towers) provide chilled water to these buildings and the East Clinic (1600 tons). This chilled water system is tied into the East Hospital chilled water system for redundancy. Two air-cooled chillers supply MRI and medical equipment. Two fluid coolers on the roof serve auxiliary/supplemental loads in the buildings.

ii. Distribution: AHUs located in penthouses and in sub-basements supply air to VAV boxes with hot water reheat on all floors of the building.

iii. Ventilation: AHUs are 100% OA. A heat recovery runaround loop recovers energy from exhaust air to preheat AHU OA air.

iv. Domestic Hot Water: Steam to hot water heat exchangers

3. **Harborview Hall**
   a. Heat and Cooling Sources: Heating is provided by off-campus steam. Heating is utilized in perimeter radiators. No central cooling system. One or two small rooftop units exist on the lower roof.
   b. Distribution: No central airside system. Small rooftop units serve a few areas on lower floors.
   c. Ventilation: Natural ventilation.
   d. Domestic Hot Water: Steam to hot water converters.
4. **Norm Maleng Building**
   a. Heat and Cooling Sources: Heating water supply is provided through steam heat exchangers. A reheat loop serving terminal reheat units operates at 180°F/160°F, and an AHU preheat loop operates at 125/100°F. Chilled water is generated by four penthouse water-cooled chillers and cooling towers (1856 tons). Chillers provide about two times the capacity that is required for the Maleng building cooling load. Chilled water is utilized by coils in AHUs.
   b. Air Distribution: Penthouse AHUs supply air to VAV boxes with hot water reheat on all floors of the building.
   c. Ventilation: AHUs are all 100% OA. A heat recovery runaround loop recovers energy from exhaust air to preheat AHU OA air.
   d. Domestic Hot Water: Steam to hot water heat exchangers. Preheat is achieved via condensate return heat recovery and condenser water heat rejection.
5. **Ninth & Jefferson Building**
   a. Heat and Cooling Sources: Heating water supply is provided through steam heat exchangers. A separate reheat loop and preheat loop are energized by this system; operating temperatures not readily known. Chilled water is generated by two penthouse rooftop water-cooled chillers and cooling towers (1410 tons). Chilled water is utilized by coils in AHUs. Three fluid coolers exist on the roof to serve auxiliary/supplemental loads in the building.
   b. Air Distribution: AHUs in Penthouse and AHUs on 4th floor serve supply air to VAV boxes with hot water reheat on all floors of the building.
   c. Ventilation: AHUs are all 100% OA. A heat recovery runaround loop recovers energy from exhaust air to preheat AHU OA air.
   d. Domestic Hot Water: Steam to hot water heat exchangers.
6. **Future New Inpatient Tower in location of View Park Garage 1**
   a. Heat and Cooling Sources: Heating hot water and chilled water. Capacities unknown.
   b. NOTE: Building is not yet designed or constructed. The HBP has provided funding.
7. **Future Behavioral Health Building in location of Public Safety/Security Building**
   a. Heat and Cooling Sources: Likely heating hot water and chilled water. Capacities unknown.
   b. NOTE: Building is not yet designed or constructed. HBP has provided funding.