OVERARCHING RECOMMENDATIONS

1. **Market-Based Emphasis:** Make the business case for energy-efficiency investment in the private sector. Focus on improving the business case through a number of mechanisms including financing tools, new financial incentives, energy price structures that incentivize conservation, and increasing market value for energy efficiency.

2. **Integrated Recommendations:** The recommendations function as a package. Many of the recommendations build upon and strengthen each other. The success of some individual measures is diminished if implemented in isolation and careful staging and sequencing is important. For example, building owners should have the benefit of the numerous incentives and assistance programs before being subject to energy-efficiency mandates.

PRICING & FINANCING

The recommendations in this report strive to strike a balance between the call for deep energy reductions and the practical reality that retrofit decisions are often made based on cost-effectiveness. Energy pricing and efficiency incentive structures that make a strong business case are key to widespread investments in energy efficiency. In fact, some important strategies only become cost-effective if pricing, incentive, and financing programs are also implemented.

Leadership Actions

1. **Make the economics of energy-efficiency investments compelling for all.** Find the right package of pricing, financing, and incentives to make energy efficiency upgrades obvious economic wins. With a diverse building stock and mix of ownership structures, there is no "one-size-fits-all" solution.

2. **Outcome-Based Incentives: Pilot (and if successful establish) an outcome-based incentive structure at Seattle City Light. Also investigate what incentive levels and structures most effectively promote deep energy retrofits and move toward establishing those systems.** Outcome-based incentives are utility incentive structures based on the actual energy savings of an energy upgrade rather than the projected savings of individual measures. This model could allow higher incentive payments because there is no risk that energy savings may not be realized (and therefore no need to discount the incentive level).

Building Energy

PRICING & FINANCING

Leadership Actions (continued)

3. **Innovative Financing Options: Ensure broad access to financing with alternative repayment structures** by exploring meter-based financing programs and, potentially, PACE (Property Assessed Clean Energy) financing or a similar model. These tools are attractive for a number of reasons, such as:
   - For business, they provide financing that allows them to side-step the capital budgeting process, and they can be characterized as an operating expense instead of a debt.
   - For residents, they link long-term repayment to a meter instead of an occupant so that repayment can be amortized over longer periods of time despite changes in ownership/tenants.
4. **Public Funding for Additional Energy-Efficiency Incentives: Identify new sources of funding for incentives to encourage deeper energy retrofits.** Seattle's mild climate and inexpensive energy create a challenge for realizing near-term paybacks for energy-efficiency measures. Because climate protection and energy conservation results provide long-term community benefits, a property tax levy is one option to generate incentive funding. Public funding through a tax levy has the benefit of being fuel source neutral (utility incentives are fuel specific), which means the incentives have considerably more flexibility to promote deep energy efficiency than utility incentives with restrictions. In addition, levy resources can be invested back into the building stock, preserving assets and potentially increasing property values. The benefits to the public include improved communities, local job creation, improved energy performance, and reduced carbon emissions.
5. **Rental Housing Energy Efficiency Property Tax Exemption: Establish a property tax exemption program for existing rental housing for owners who undertake energy retrofits**. In situations where the tenant pays utility bills, there is little financial incentive for landlords/building owners to undergo an energy retrofit. This program would provide a financial incentive for landlords/building owners to take action and lower utility bills for tenants.

PRICING & FINANCING

Quick Start Actions

1. **Outcome-Based Incentives:** Seattle City Light should **coordinate with other utilities to pilot a performance-based utility incentive program** that would pay incentive dollars over time as actual energy savings are verified, rather than paying an up-front incentive based on the projected savings of individual measures.
2. **Innovative Financing Options: Launch a working group of downtown property owners and managers to evaluate financing tools** for commercial buildings and identify those which are most likely to promote the deepest energy-efficiency investments. **Develop a plan to bring the financing tools to market,** including a legislative strategy if one is required.
3. **Public Funding for Additional Incentives: Define the elements of an incentive program that a bond initiative would support. Link the message of public funding to tax exemption programs and rebates** to make it clear that the public is collectively investing in their own building stock.
4. **Rental Housing Energy Efficiency Property Tax Exemption: Pass legislation** for the authority to establish a property tax exemption program for existing rental housing owners who undertake significant energy retrofits.

Seattle City Light South Service Center is lit by carbon-neutral electricity.
(Photo: Seattle Municipal Archives)

Building Energy

EFFICIENT OPERATIONS

Most of the buildings we will see in Seattle in 2050 have already been built. Making deep efficiency gains in our existing building stock is imperative to meeting the City's climate protection goals. Seattle is a conservation leader thanks to robust programs from Seattle City Light and an aggressive Seattle energy code. But the City has much less experience, and few programs or tools, for reaching existing buildings outside those contexts (Community Power Works and the City's Energy Benchmarking requirements are notable exceptions).

The recommendations for existing buildings are found both in this section and in the Pricing & Financing section. While the recommendations focus on building an economically compelling case for energy efficiency investments, there is also a role for mandates to ensure widespread action. Implementing the incentives, financing and regulatory recommendations should be staged to reflect their interactions, maximize synergies, and avoid unintended consequences. The key is to enable the financial capacity for voluntary action before expanding to mandates, by focusing first on the Pricing & Financing strategies in the previous section.

Leadership Actions

1. **Make energy use visible** to make gains in energy efficiency. This requires real-time, easy to understand information about energy use, and building energy ratings that are easily accessible to the public.
2. **Benchmarking, Disclosure, and Rating: Establish programs to increase the visibility and awareness of energy performance in buildings.** The right program design varies by building type:
   - For large multifamily and commercial buildings, expand the existing Benchmarking and Reporting program to make benchmarked information more publicly available, with an ultimate goal of having highly visible energy performance (e.g. place energy ratings or real-time meters in building lobbies). This recommendation should be enacted after incentive and assistance programs to improve building performance and promote voluntary disclosure.
   - For single family homes, establish a requirement for disclosing a home energy use or energy-efficiency rating at the point of sale.

EFFICIENT OPERATIONS

Leadership Actions (continued)

3. **Energy-Efficiency Standard: Create an energy-efficiency standard to ensure widespread improvement to our entire building stock.** Even with attractive incentives and near-term paybacks, many buildings will continue to operate without even the most cost-effective energy-efficiency upgrades. A standard can be strategically implemented to ensure required improvements are cost-effective, and can ramp up over time after tools and incentives are available to assist building owners. The right overall strategy should define a clear and easy path for voluntary compliance before such requirements are introduced. The Energy-Efficiency Standard itself should:
   - Expand inspections and enforcement for energy code compliance.
   - Require large multifamily and commercial building owners to improve the energy performance of buildings at established intervals (e.g. once per decade). Examples include a mandatory building "tune-up" (retro-commissioning), or a change-out of the most inefficient lighting systems.
   - Require cost-effective home energy upgrades for single family homes at the point of sale. This should be a longer-term strategy, enacted only after information, financing tools, and rebate programs are in place to incentivize voluntary action.
4. **City Leadership: Use City buildings as role models, test cases, and case studies for new policies.** The City should show leadership in its municipal buildings.

Building Energy

EFFICIENT OPERATIONS

Quick Start Actions

1. **Retro-Commissioning Incentives:** If pilot results are positive, **identify resources to scale up and expand Seattle City Light's retro-commissioning pilot program**, which will provide an audit to help building managers identify and implement operational and maintenance improvements.
2. **Retro-Commissioning City Buildings: Develop a strategy for retro-commissioning City facilities** as part of the Resource Conservation Management Plan under development.
3. **Community Power Works:** Build on the lessons of the Community Power Works pilot program to **establish a long-term program to provide assistance, financing and other tools to building owners** that will drive deeper energy-efficiency upgrades.
4. **Rapid Deployment of Smart Meters: Support the rapid deployment of advanced metering infrastructure** by implementing Seattle City Light's Strategic Plan, to better support residents with energy management. Smart meters help educate users by providing them with real-time information about their energy use and the impacts of conserving.
5. **Benchmarking, Disclosure, and Rating: Define and test core program elements for a home energy rating requirement at the point of sale.** For example, a near-term pilot could explore how a program would use home inspectors, appraisers, home energy assessors and/or previous utility bills in evaluating home energy performance.

Community Power Works delivers energy efficiency solutions to Seattle's residential and business communities, while working to create economic growth.

Building energy use displays at the University of Washington Bothell campus. (Photo: Marc Studer)

EFFICIENT CONSTRUCTION

The strategic point at which a City can most easily influence energy use in buildings is through the regulations placed on new construction and major renovations. Seattle has a history of doing so through its energy code and green building incentives. The energy code should continue to be at the core of the City's strategy to reduce energy use and carbon emissions in new buildings. The State of Washington is already planning to incrementally increase the efficiency of the state energy code, and the City should continue to achieve an even higher bar with its own energy code. Until energy codes require deep energy efficiency, incentive programs should encourage new construction to voluntarily achieve those standards.

Leadership Actions

1. **Outcome-Based Energy Code: Move toward an outcome-based approach to managing energy code compliance** to ensure buildings are attaining their modeled performance. Ultimately the energy code should include a combination of prescriptive elements, performance requirements, and outcome-tracking.
2. **Energy Upgrades with Substantial Alterations: Require that the energy performance of buildings undergoing substantial alterations come close to (e.g. within 20%) the energy performance requirements for new buildings.** A substantial alteration is a building code term for a major change to a building or its use, like replacing the interior after a major fire, or restoring a vacant building. Such extensive remodeling typically occurs once every 30-50 years in a building's life, and provides a rare opportunity to economically upgrade a building's energy performance.
3. **Land Use Policy and Building Codes: Think creatively about how land use policies and building energy strategies can integrate to create highly efficient new construction.** For example, land use codes could strategically drive building designers to better capture passive heating, cooling, and daylighting opportunities. Infrastructure funding related to transportation and land use could also support district energy infrastructure. Integrating energy consideration into land use and zoning discussions could capture additional opportunities for multiple wins.

Building Energy

EFFICIENT CONSTRUCTION

Quick Start Actions

1. **Green Schools: Work with the Seattle School District to create the greenest, healthiest, most energy efficient portfolio of schools in the United States** by using proceeds from the proposed school levy (BEX IV) as well as state funds. New schools should aspire for Living Building Challenge certification, and retrofitted schools should aspire to LEED Platinum Existing Building certification. New schools should last for at least 100 years. All schools should be designed to maximize the opportunities for students to learn from their facilities and to minimize the cost of ongoing operations and maintenance.
2. **Outcome-Based Energy Code:** Evaluate the findings of the existing outcome-based energy code pilot between the Preservation Green Lab and the City and develop a strategy for building upon the pilot.
3. **Living Building Pilot:** Work with stakeholders to continue improving the Living Building and Deep Green Pilot Program to promote deep green buildings in Seattle. As part of this work, consider additional protections for solar access to ensure that investments in solar energy can continue to be realized in the long-term.

Students in the Bertschi School Living Building Science Wing by the Restorative Design Collective. The classroom is on target to be the first certified Living Building Challenge project in Washington state. (Photo: Benjamin Benschneider)

INFRASTRUCTURE FOR LOW-CARBON FUELS

Energy efficiency can only take us so far: carbon neutrality requires the city to further adopt low- or no-carbon energy sources. Seattle is fortunate to benefit from carbon-neutral electricity through Seattle City Light, but there are many buildings that use fossil fuels—natural gas and oil—to heat and cool their buildings. On-site renewable energy systems and district energy systems are part of the solution. District energy systems provide a platform for using waste heat and renewable energy sources, and moving these resources around in a system to where and when they are most needed. Given the high cost of infrastructure, the load requirements needed to make district energy cost-effective, and Seattle's carbon-neutral electricity, district energy is not a universal solution, but does have a valuable role in targeted locations.

Leadership Actions

1. **Create a diversity of low-to-no carbon energy sources.** Hydronic heating infrastructure and a connected network of district energy systems can bring versatility to the city's low-carbon energy resources. On-site renewable energy systems help supplement the City's carbon-neutral electricity, create diversity in supply, and contribute to the market growth of renewable energy systems.
2. **Waste Heat Recovery: Develop district energy systems and incentive programs to capture and utilize waste heat** (e.g. from industrial operations, data centers, or sewage lines). In the longer-term, and where appropriate, mandate waste heat recovery. Heat recovery not only makes use of a waste product, but in some cases can reduce other energy needed to cool the excess heat.
3. **Use of Public Space for Alternative Energy: Allow public space, including the public right-of-way, to be used for alternative energy where appropriate.** Potential uses include solar panel encroachment, and inserting ground source heat wells to provide heating and cooling to nearby buildings. This alternate siting of ground source heating can provide benefits to construction schedules and budgets, because construction would not need to cease on the building site while the wells are being installed.

Building Energy

INFRASTRUCTURE FOR LOW-CARBON FUELS

Quick Start Actions

1. **District Energy Pilot:** The City is currently undertaking a study to test the feasibility of developing a district energy system with a private utility partner. If the feasibility analysis results are positive, **support development of the system and ensure its commitment to low-carbon fuel sources.**
2. **Low Carbon Energy Master Plan: Develop a master plan to guide the establishment of low-carbon energy systems in the City.** Successfully establishing low-carbon energy infrastructure requires a long-term strategy and careful coordination. The plan should identify priority locations, priority energy sources, and policies on utility coordination, as well as consider the advantages of hydronic heating in future code evolutions and identify associated land use impacts or other policies, requirements, and incentives. The plan should recognize and build upon existing district energy successes in Seattle, and focus growth of district energy in ways that minimize carbon and other emissions that impair air quality.
3. **Carbon-Neutral Electricity: Maintain SCL commitment to meet load growth with conservation and renewables, as well as to providing zero net emission electricity.** SCL should also facilitate the adoption of electric vehicles in Seattle to help reduce our dependence on oil.

GUIDING PRINCIPLES

1. **Take a broad view of policy design to enable building energy strategies to achieve additional community outcomes.** For example, expanding some incentive programs beyond a focus on energy to also consider green building and health goals can help Seattle achieve greater energy and water conservation, healthier indoor environmental quality, more use of recycled materials, and improved housing and business affordability. The City should explore options for capturing broader environmental, health, and equity goals into the implementation of the recommendations.

2. Recognize and **enhance shared prosperity among Seattle residents and businesses when implementing recommendations.** Investments in energy efficiency support local job growth, keep utility bills low, and improve the quality of our community's building stock.

An artistic rendering of what the future of Broadway could look like in the planned Capitol Hill EcoDistrict, which aims to balance broad environmental, health and equity goals in neighborhood projects. (Image: Courtney Hathaway, GGLO)