

Clean Buildings Case Competition

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Develop innovative outreach and communication strategies aimed at commercial property owners to help them better understand new policies and the early phases of the decarbonization process. This prompt is extremely relevant and timely. Many professionals in the industry are entertaining new ways to engage property owners so they are more prepared for market changes.

Overview:

Buildings are the second-largest source of emissions in Washington State, behind transportation. A 2015 study found that buildings account for approximately 27% of total emissions in the state, compared to 44% from transportation. Energy experts also claim that because of population growth, emissions from buildings are growing faster than any other source in Washington. In which case, it is reasonable to assume that the 27% statistic needs an upward adjustment to properly reflect current percentages. But there is a silver lining, because these same experts also claim that commercial building upgrades are the most cost-effective way to lower emissions, which is why this case study concentrates on commercial properties and not single-family residential properties.

A commercial building, as mentioned in this study, can mean any one of the following – multifamily, affordable multifamily, office, retail, mixed-use, industrial, agricultural, community centers, recreational, religious, hospitality, healthcare, government, and schools.

Energy demands from buildings in Washington are exacerbating the climate crisis and making it more difficult to realize comprehensive statewide emission goals – a 45% reduction from 1990 levels by 2030, a 70% reduction by 2040, and net-zero by 2050. Localized pollutants are also produced from buildings, and these pollutants are harmful to the health of residents. Natural gas that is burned in furnaces, water boilers, and kitchens is a notable offender because it is linked to a host of heart & respiratory complications. People that live in denser urban zones with older and less energy-efficient buildings experience a higher rate of health issues. Since underserved community members are disproportionately located in these more heavily polluted urban areas, equity and health are key driving forces behind our state's effort to make the built environment cleaner.

Market Changes:

With the goal of lowering greenhouse gasses and localized pollutants, governments in Washington have introduced decarbonization policies that will heavily influence property markets going forward. In terms of recently passed state laws, local ordinances and updated building codes, there is a *substantial amount of activity* around clean buildings, which makes this case competition extremely pertinent. Let's review market changes by dividing information into two sections – new construction and existing buildings.

New Construction

Building codes, which regulate the design, construction and modification of structures, are the most effective way for governments to control the lifetime emissions of a new property. The links below provide information on energy specific building codes that have been approved or are being considered at different levels of government:

- [Washington State](#) (approved)
- [King County](#) (awaiting approval – King County Council will likely vote to approve soon)
- [City of Seattle](#) (approved)

There are clear similarities between these energy specific building codes. The use of natural gas in new buildings is being severely curtailed. That's because natural gas used to power furnaces and boilers constitutes a majority of all building emissions. This is more true in the PNW with the prevalence of hydropower, which makes electricity for lights, devices and appliances less carbon-intensive compared to other regions. Here is the energy mix for the [City of Seattle](#) and [Washington](#). Something else worth mentioning is the [Clean Energy Transformation Act](#), which will require nearly all electricity sold by utilities in the state to be carbon-free by 2030. The passage of this bill shifts even more attention to the abatement of emissions from on-site natural gas sources in commercial buildings.

Existing Buildings

Curbing emissions from our existing building stock is a more difficult challenge for governments in Washington State, which requires them to employ a creative set of policy tools and market interventions. Building codes also play a role here. For instance, a property owner may be required to invest in energy efficient space & water heating pumps when dated or defunct natural gas alternatives need to be replaced. But for this section, we want to shift our attention to performance standards.

Performance Standards are laws adopted by governments that require qualifying properties in their jurisdiction to invest in upgrades so that energy measures meet an approved level of efficiency. Performance standards are a win-win. They reduce utility expenses for property owners and tenants, plus they mitigate greenhouse gasses and localized pollutants.

1. In 2019, **Washington State** signed into law the Clean Buildings Performance Standard (CBPS). *This law only applies to larger commercial properties in Washington.* Originally, most commercial properties greater than 50,000 sq ft were told they had to follow the statewide energy efficiency standard. But this law was just amended during the most recent state legislative session, and now most properties larger than 20,000 sq ft need to achieve select aspects of the energy efficiency standard. In 2026, enforcement for the CBPS will begin with the biggest buildings throughout our state, those greater than 220,000 sq ft. Smaller properties will phase in after that. With this first iteration of the CBPS, the state wants to reduce average emissions from large commercial properties by about 15%, compared to data recorded from 2009 to 2018. The number of energy upgrades required for respective buildings will be determined by the energy use intensity of the structure relative to the average energy use intensity of similar structures less 15 percent. Property owners can voluntarily install upgrades that result in efficiency gains which exceed the state's current performance standard (the standard will be updated on a 5-year cycle). Most who make this extra effort will be rewarded with increased savings on their utility bill. The CBPS is by no means a hard stopping point. Visit this [link](#) to learn more.

The **City of Seattle** also has a performance standard being developed for commercial properties. This proposed performance standard is similar in many ways to the CBPS being rolled out across the state. Like the amended CBPS, it will apply to buildings that are larger than 20,000 sq ft. However, it may mandate an energy use intensity that is more stringent than the 15% average improvement required under the first CBPS cycle. Buildings in Seattle would have to comply with the Washington State *and* the City of Seattle performance standard, although the city plans to align timelines and reporting to reduce the regulatory burden on property owners. Visit this [link](#) to learn more.

Let's pause for a second and recognize the magnitude of these performance standards. No other state in the US has adopted a buildings performance standard. Washington is the first. And Seattle also joins a short list of cities that have enacted this regulatory measure. Huskies have a front row seat to the most dynamic clean buildings market in the country! The experience of Washington will serve as a model for other states to follow, and Seattle will help validate this policy at the municipal level.

Compliance Assistance:

Performance standards will require significant changes in many buildings. This will be a manageable undertaking, but that does not make it easy. Thankfully, stakeholders in Washington – governments, lenders, utilities, nonprofits, etc. – have anticipated and addressed most challenges property owners will encounter as they transition to a place of compliance. Listed in this section are financial tools, incentives, and programs that help property owners align with performance standards.

1. **C-PACER Loans (King County):** The acronym stands for *Commercial* Property Assessed Clean Energy and Resiliency. These are special loans tailored to the needs of building owners, making it easier to finance energy and water upgrades in properties. Financing is a critical piece of the puzzle because upgrades are expensive, and few property owners are able to pay upfront. C-PACER loans make it possible to spread nearly the full cost of upgrades over a lengthy period, 25 – 30 years, so that loan payments are smaller and coincide with utility bill savings. If everything goes according to plan, owners can immediately observe more income because annual utility bill savings will be greater than annual loan payments.

This is a low-risk, long-term loan, which translates into smaller loan payments. One reason for this lower risk is that C-PACER loans are senior to other debt obligations attached to properties. That means C-PACER lenders get paid first if the property owner enters bankruptcy. Another risk-reducing attribute is the fact that these loans are fixed to buildings instead of borrowers.

Imagine a property owner who takes out a C-PACER loan, invests in energy efficiency upgrades, and then sells the building two years later to a new owner. The old owner will no longer make loan payments for investment upgrades. Instead, the new property owner will assume payment of the loan, and in return they will benefit from even greater utility savings made possible by upgrades. Loan payments are transferred to lenders through property assessments, the A in C-PACER, which is what makes this handoff between property owners possible. The loan transaction takes place between a property owner and a lending institution. Governments approve C-PACER financed projects to ensure guidelines are met and then they record a lien on the property. A state bill had to be passed that permits C-PACER loans in Washington because of this limited government involvement. This occurred in 2020, making WA one of 38 states that have sanctioned this low-risk, long-term financial instrument. And now it is up to individual county councils to formally adopt C-PACER lending through a local *ordinance* (laws for counties and municipalities). No building can take out a C-PACER loan until the county council where it is located passes the necessary ordinance. Only a few counties so far have gone to this length. King County is one of them.

It is helpful to have a high-level understanding of C-PACER loans and to appreciate how they support the unique financing needs of the market. Here are some additional C-PACER resources – [King County](#) and [Kitsap Bank](#) (check out the fun and educational videos on the King County webpage, they were made by [2050 Project](#)). The PACE Nation [website](#) is also rich with data that shows what commercial buildings use C-PACER loans, and the type of upgrades being financed. Notice how governments are not mentioned on the graph. Publicly owned properties seldom change ownership, and governments don't pay taxes on their property. Consequently, C-PACER loans are not intended for public borrowers.

2. **Early Adopter Incentive Program (Washington State):** A state issued incentive for property owners that invest in upgrades and satisfy building performance standards before enforcement dates are reached. This incentive lowers the investment cost of energy-efficient upgrades, and the size of any loan that may be taken out. Properties 50,000+ sq ft in size that demonstrate early compliance will receive a one-time payment that equals \$.0.85 per gross sq ft of the building.

The incentive is smaller, \$0.30 per gross sq ft, for buildings between 20,000 and 50,000 sq ft in size.

So, if a 50,000 sq ft property achieves early compliance, then \$42,500 would be distributed from this program (funds are technically channeled through utilities). Assuming the gross cost of building upgrades is \$250,000, then the net cost after discounting the incentive equals 207,500. In this scenario, the incentive represents 17% of the total investment that is needed for the structure to comply early with the Clean Buildings Performance Standard. The state has allocated \$75 million to the incentive program. And this pool of funding will be available to property owners on a first-come, first-serve basis. Once all the funds have been doled out to subsidize energy efficiency investments that predate the enforcement period, this financial incentive will no longer be available. Half of the \$75 million - or \$37.5 million – is earmarked for projects that satisfy certain equity criteria and fall into one of three categories: highest energy users, rural communities, and multifamily affordable housing.

Continuing with the numbers from above, if the average incentive for early compliance projects is \$42,500, then the \$75 million fund can subsidize upgrades for 1,764 buildings (882 buildings that fulfill equity criteria!). In many ways, the Early Adopter Incentive is a market signal that tells property owners not to delay energy upgrades until CBPS compliance dates. They can start saving money before performance standards become binding! Click [here](#) for more information about the Early Adopter Incentive Program, and check out the guidebook if need be.

- 3. Building Tune-Ups Program (City of Seattle):** This requires most Seattle properties 50,000+ sq ft in size to act on low or no-cost energy efficiency upgrades related to building operations and maintenance, which lowers energy consumption and expenses by 10-15%. Low hanging energy improvements are the target with this initiative. Therefore, the City of Seattle is doing property owners a big favor. By helping large commercial buildings take this first energy efficiency step, Seattle is making it that much easier to comply with state and city performance standards. Click [here](#) to learn more about Seattle Building Tune-Ups and required reporting dates for different building sizes. It might also be helpful to learn about Seattle's energy [reporting and benchmarking](#) policy, which allows the city to track and confirm energy efficiency gains for specific buildings.

The energy efficiency work performed in a tune-up is similar to the work that buildings require to comply with performance standards, which is similar to the work financed by C-PACER loans, which is similar to the work subsidized by the Early Adopter Incentive Program. This work is not conducted by utilities, cities, counties, or state governments. Rather, energy service companies (ESCOs) carry out the physical task of making buildings more sustainable and efficient, and collectively they represent a very important node within the clean buildings network. [Here](#) is a list of local ESCOs that perform tune-ups and energy efficiency upgrades more broadly. The list was compiled by a WA-based clean buildings nonprofit - the Northwest Energy Efficiency Council. Governments and publicly owned utilities are not able to refer property owners to ESCOs or any private service provider, such as lending institutions that offer C-PACER loans. But students can.

Alternatively, private utilities like Puget Sound Energy can help property owners identify suitable ESCOs. PSE also offers [incentives](#) for buildings in their service territory that require tune-ups.

- 4. Utilities:** These grid operators are another critical node in the clean buildings network and help commercial properties comply with performance standards in multiple ways. There are 28 utilities in Washington State, but we only want you to consider two – Puget Sound Energy and Seattle City Light. Utilities sell energy like electricity and natural gas. But it is also in their

interest to conserve energy by helping commercial buildings become more efficient. When large properties consume less energy, total energy demanded across a utility grid is lower. So even with increasing populations, utilities can avoid constructing expensive energy generation plants and transmission lines that are needed to supply the grid during demand surges. Utility companies are industry giants that offer a multitude of services and incentives, many of which help commercial buildings comply with the CBPS. Directing you to all these programs and incentives is less important than recognizing utilities as crucial resources for commercial property owners. Reference the *Appendix* for links to specific programs and incentives managed by Puget Sound Energy and Seattle City Light.

- 5. Nonprofits:** Before ending this section, let's recognize the contributions made by nonprofits that offer energy efficiency services for commercial buildings. Organizations like the [Northwest Energy Efficiency Coalition](#), [2030 District Seattle](#), and [Spark Northwest](#) are especially useful intermediaries for property owners with fewer resources.

Many other nonprofits exist that help shape the local buildings market. Some of these nonprofits advocate for policy. In fact, all the policies mentioned in this case study were championed by Washington's robust nonprofit sector. There are also nonprofits, like those above, that assist commercial property owners, and others, comply with policies that their counterparts helped pass. Policy advocacy and support services are two crucial roles completed by nonprofits, but the latter category is more applicable to this case competition.

Concluding Summary:

Emissions from Washington's built environment, *particularly from natural gas*, make the global climate crisis worse and generate localized pollutants that can lead to negative health outcomes for anyone with enough exposure. Looking at climate and population health, both problems disproportionately burden communities with fewer resources and less representation. Equity and clean buildings go hand in hand. Injustices within the market have undoubtedly accelerated the number of bold decarbonization policies introduced and passed by governments throughout Washington State.

It is helpful to get a complete picture by comparing policies that apply to new construction with policies that apply to existing buildings, which is why we covered energy codes. But this case competition is not about the former. You cannot get approval to build a new property or make large modifications without satisfying required codes, so strengthening public-facing communications at this phase adds negligible value.

The opposite is true for policies that target already built properties. Enhanced communications are necessary to properly engage owners so they can *respond accordingly* to dramatic changes in the market brought about by policy. As more building owners recognize and understand the implications of policy adjustments, friction throughout the market will be alleviated, making it easier to achieve policy goals in a timely manner.

The problem confronted by this case competition is that not enough property owners know about the statewide performance standard, or the city standard coming down the pipe. Many aren't seeking out financial tools, incentives, and programs that will make it easier to comply with performance standards. The number of messengers and the difficulty of alignment also creates problems. Washington State is sharing information about the Clean Buildings Performance Standard and the Early Adopter Incentive. King County is sharing information about C-PACER loans. The City of Seattle is sharing information about their own performance standard, plus tune-ups. And local utilities are promoting energy efficiency programs and incentives. In their own way, every group is addressing the same objective -

clean buildings. However, from a property owner's point of view, it may be hard to connect the dots and see the forest for the trees.

Moreover, some commercial property owners likely interpret energy upgrades as a net loss instead of the net financial gain it can be if the proper steps are pursued. Even the relationship between energy consumption, building emissions, and negative climate/health impacts can be illuminated more clearly. These communication hurdles are holding the market back.

The Challenge for Students:

This case competition is asking student teams to come up with innovative outreach and communication strategies that will help put more commercial buildings on the path to compliance for performance standards. There will be a lot of room for your team to innovate. But don't feel as though your team is expected to design extremely technical solutions. Most of the information you need for this challenge should be contained in the above text or easily located in one of the provided links. Your team is not being asked to get property owners across the finish line. Rather, we need your help getting them off the starting block. The market requires new creative strategies that widen the funnel so more building owners are supported by industry professionals who can guide them to compliance and improved energy efficiency. Utilize the provided structure as a framework for presenting your solution.

- A. Target Audience: *Let's start by reviewing the different types of commercial buildings – multifamily, affordable multifamily, office, retail, mixed-use, industrial, agricultural, community centers, recreational buildings, religious sites, hospitality, healthcare, government, and schools.*

Your team will choose how best to project outreach and communications ideas onto this list of commercial buildings. Your idea could involve just one class from the above list, like affordable multifamily. A set of commercial properties. Or it can cover the entire list. Unless your idea can easily scale with technology, we suggest restricting your geographic scope to the Seattle region.

There is one exception to that last sentence. As an alternative to property owners, your team also has the option of developing an outreach strategy that encourages county councils across the state to make C-PACER loans available to commercial buildings in their jurisdiction.

We also want to point out that large, established property owners are more likely to possess resources that enable them to anticipate policies and market changes. Property owners with smaller budgets and less access to energy experts, especially those in underserved communities, need more assistance finding their way onto the path of compliance. Keep this in mind.

- B. Information: In addition to selecting a target audience, your team must choose what information you want to communicate. Given its statewide reach, every idea should be grounded in the Clean Buildings Performance Standard. And from here, your idea may encompass all compliance assistance options that were explained, a select few, or just one. For example, proposals can be as narrow as a communications and outreach strategy that alerts multifamily affordable housing property owners to the CBPS and the Early Adopter Incentive Program that they qualify for. Or it can be broad enough to cover every commercial property type, the CBPS, and every kind of assistance. If done correctly, your team could even go all in on just the CBPS without diving into compliance assistance. Select a scope that reflects your collective interests and backgrounds.

Look closely at what properties qualify for the information your team covers, especially if your focus is narrower. To simplify things, we didn't explain that different policies can apply to slightly different building types. Examine this detail carefully on the government webpages that were shared.

- C. Form & Style: Next, think about how information would be documented with your idea. Would it be written? Filmed? Baked into a slide deck? Performed? Or some mixture?

Also, consider the style and tone of the message that will be used as a vehicle for information. Do you want to circulate a public service announcement, or do you want to tell a story? These are not the only options available to student teams. We just want to illustrate that a wide range exists. Furthermore, do you want the tone of your message to be positive or negative? Serious or humorous? Grounded in the realm of business or the realm of culture? There is no right answer.

- D. Delivery: How will you get information in front of your target audience? This is closely related to Part (C). The way in which you document information, messages, and stories will lend itself to a particular medium of delivery, which may include one or several of the following - social media, email, advertising, other media, events, presentations, or alternative in-person/virtual activities. This list is not exhaustive.

You should also figure out what type of entity is needed to effectively deliver information to target audiences. Can your idea complement the efforts of an existing student or community organization? Could it be folded into the activities of the primary stakeholder groups referenced in this study, like a government, utility, nonprofit, financial institution, or an ESCO? Or maybe your idea resembles a coalition if it calls for extensive collaboration.

- E. Goal: What is the purpose of your message? Do you want to educate and inform property owners? Do you want to establish some kind of reward, incentive, or recognition for property owners who take action? Or do you simply wish to inspire the market?
- F. Looking Ahead: What are you asking from your target audience? What next step are you setting them up for? What stakeholder(s) – governments, nonprofits, utilities, lenders, ESCOs – do you want to refer them to?

It is worth reiterating that team ideas are just intended to get property owners off the starting block and onto a path of compliance for performance standards. You do not need to be a technical expert to connect property owners with technical experts.

However, you do need to have a dedicated financial section in your presentation. Like the framework above, everyone's financial section will likely look different. If your solution is pitched as a business venture, you may want to produce a more technical pro forma analysis of project revenues, expenses and incomes that contain calculations like NPV, IRR, and ROI. Such financials would need to be supported by a monetizable business model. But if your proposed solution relies on student volunteers, you will care less about quantifying expected net incomes and monetizing services! In this situation, it may be more appropriate to label your financial section as a "cost estimate". How could you approximate the cost of student labor? Also, how would you plan to recruit student volunteers? There is no correct way to frame this financial section. Just be ready to defend any choice you make.

Student teams will be awarded for original solutions and outside the box thinking. The framework outlined in this section should not thwart creativity, it will just make it easier for judges to compare a range of proposals.

Appendix:

Here are some additional resources that can be reviewed by your team to help develop ideas and solutions.

City of Seattle

- [City of Seattle Energy Benchmarking Map](#) – useful tool that visually represents energy consumption in commercial buildings throughout Seattle.
- [Seattle Clean Buildings Accelerator RFP](#) – challenge similar to this case competition managed by the City of Seattle with additional language that provides context.
- [Building Fact Sheet](#) – short document that explains steps the City of Seattle is taking to electricity commercial buildings.
- [Building Case Study \(1\)](#) – case study produced by the City of Seattle that outlines a decarbonization plan for a specific property.
- [Building Case Study \(2\)](#) – another case study that explains a specific decarbonization plan.

2030 District

- [Nonprofit Competition](#) – decarbonization plans for different properties in Seattle.

ACEEE

- [Utility Program Designs](#) – a blog post about how utilities can scale energy efficiency programs.

Seattle City Light: Programs and Incentives

- [Building for Energy Efficiency](#)
- [Energy Conservation Incentives](#)
- [Small Business Support](#)
- [Large Commercial Property Support](#)
- [Renewable Energy Services](#)
- [Additional Energy Program and Tools](#)

Puget Sound Energy: Programs and Incentives

- [Commercial Strategy Energy Management](#)
- [Multifamily Retrofit Incentives](#)
- [Commercial Retrofit](#)
- [Business Incentives](#)
- [Renewables for Business](#)
- [Custom Grants](#)