

April 27, 2022

Department of Energy and Environmental Protection
10 Franklin Square
New Britain, CT 06051

Re: DEEP Draft Determination and Conditions of Approval for the 2022-2024 Conservation and Load Management Plan

[Acadia Center](#) is a non-profit research and advocacy organization committed to advancing the clean energy future by offering real-world solutions to the climate crisis. Acadia Center tackles complex problems, identifies clear recommendations for reforms, and advocates for policy changes that support a low-carbon economy across the Northeast. Acadia Center identifies regional, state, and local improvements that will dramatically reduce carbon pollution and improve quality of life throughout the Northeast.

Acadia Center is grateful for this opportunity to comment on the Draft Determination on the 2022 – 2024 Conservation and Load Management Plan (C&LM Plan) that the Department of Energy and Environmental Protection (DEEP) issued on April 12, 2022. Acadia Center will limit our comments at this time to various items and areas included in the Draft Determination specifically around electrification and weatherization, cost-effectiveness testing and new sources of energy efficiency funding and WAP program integration. Acadia Center also appreciates that DEEP's Draft Determination and Conditions of Approval (COAs) promote the three priorities of the C&LM Plan, which include equity, decarbonization, and energy affordability.

The C&LM Plan Should Advance Next Generation Energy Efficiency Principles

Connecticut is a national leader in energy efficiency, with some of the highest per capita investments in energy efficiency and among the most ambitious energy savings goals. Despite this success, significant potential savings still exist in Connecticut—especially among environmental justice communities, who have not benefited from the same level of access to efficiency upgrades as other populations in the state. Far more must be done to improve the efficiency of Connecticut's homes and businesses and to ensure that all overburdened and underserved communities reap the full benefits of efficiency offerings. Programs have not delivered services adequately across all income levels and communities. According to the program administrators, many consumers face unequal access to benefits under existing efficiency programs, and underserved communities that face the worst impacts of climate change and poor housing quality have not been able to take full advantage of efficiency programs.

Twenty-three percent of energy audits in low-income homes are rejected because of health and safety barriers that make retrofits more expensive.¹ The occupants of these units are the least likely to have the resources to remediate asbestos and other health threats on their own, despite occupying homes that, frequently, are prime targets for efficiency upgrades due to their drafty and uninsulated building shells. Additionally, supporting the acceleration

¹ Energize Connecticut and Eversource. Home Energy Solutions: Market Rate/Income Eligible presentation. November 2020

of clean energy resources and the transition away from fossil fuels requires that the programs prioritize clean electric heating and whole-house electrification.

Acadia Center's [Next Generation Energy Efficiency](#) initiative offers four principles to help center efficiency programs around meeting climate, environmental justice, and electrification goals. Connecticut's C&LM plan should help to 1) strengthen the role of efficiency in improving housing quality; 2) address climate mitigation and greenhouse gas emissions reductions; 3) better align energy efficiency and electrification; and 4) sustain investments in energy efficiency as a leading energy resource for the state. **Below, we describe several key recommendations for how the 2022-2024 C&LM plan can advance these goals.**

The C&LM Plan Should Prioritize the Highest-Emitting Buildings

In the residential sector, the leakiest 25% of housing units in Connecticut produce more than half of emissions attributable to housing.² Typically, these super-emitting housing units are located in lower-income communities and communities of color and include residents who speak languages other than English. By reforming programs in recognition of these conditions, Connecticut has an opportunity to accelerate progress towards reaching its greenhouse gas reduction targets while reducing energy burden and fostering energy justice.

The top 25% of homes emit so much because the buildings' shells are drafty and uninsulated—often, the product of years of neglect. Building shell inefficiency leads not only to higher emissions, but also to higher energy bills for residents—not just relative to household income, but in absolute terms. It is essential to reform existing weatherization and efficiency programs so that barriers to retrofits are removed and homes (and the residents living in them) that will benefit the most from clean heating and energy efficiency upgrades are properly treated. Retrofitting these homes would significantly reduce energy bills for many vulnerable households in Connecticut, improve indoor air quality, and cut residential sector emissions by more than half.

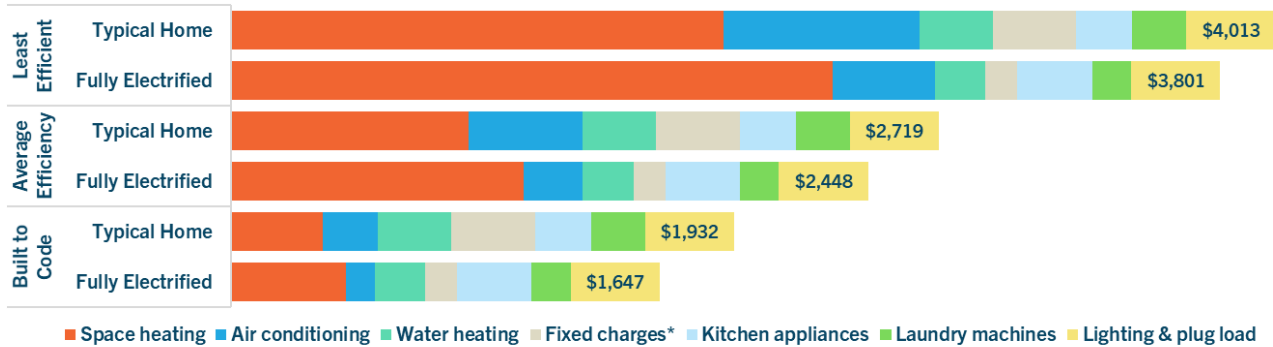
Data from the U.S. Energy Information Agency shows that the households that occupy the highest-emitting homes are disproportionately low-income—73% of the highest-emitting homes are low-income, compared to 36% of the lowest-emitting homes. Targeting these homes for comprehensive retrofits will relieve the energy burden among low-income households and renters while substantially reducing emissions from the residential sector.

Acadia Center's [PowerHouse Home Energy Simulator](#) demonstrates just how expensive the highest-emitting homes in the state can be to live in. In Connecticut, one of the 25% highest-emitting homes would cost more than five times as much to heat each winter as a home built to that state's current building energy code. A similar home located further north would cost even more.

² U.S. Energy Information Administration. 2015 Residential Energy Consumption Survey (RECS).

Annual Operating Costs by Building Shell Efficiency Level

Hartford, CT



Source: PowerHouse Home Energy Simulator

* Electric and natural gas ratepayers all pay a minimum monthly bill, which is the same every month regardless of energy use. Homes with gas service pay both of these charges, while all other homes only pay the electric charge.

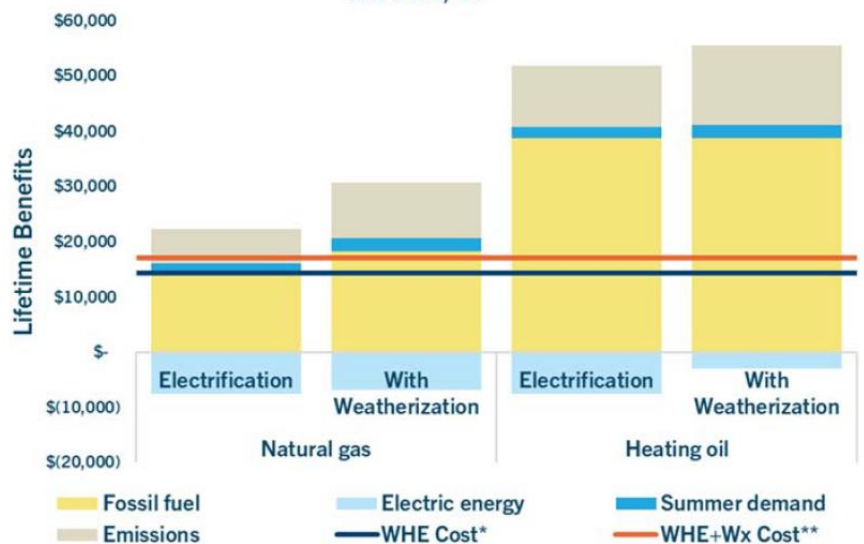
Studies demonstrate that many low-income and moderate-income families do not enjoy the same level of access to efficiency programs as do higher income households. To address this inequity, **Acadia Center recommends that Connecticut's programs proactively target high-emitting, lower-income homes.** By doing so, Connecticut can simultaneously increase savings, bolster cost-effectiveness, reduce emissions, alleviate energy burdens, and improve health outcomes among low-income and environmental justice communities.

Pairing Weatherization with Electrification is Essential

To meet Connecticut's greenhouse gas emission requirements, the state must rapidly weatherize and electrify its buildings, and electrifying and weatherizing housing for low- and moderate-income residents should be a top priority. Weatherizing buildings prior to electrification will help to ensure that the right-sized heat pump is used, saving money both upfront and on monthly bills. Heat pumps can reduce utility bills for all customers, regardless of what heating fuel they currently use, but are particularly cost-effective for customers who rely on old electric resistance space and water heating equipment. Replacing this inefficient electric equipment with modernized, highly efficient electric

Lifetime Net Benefits of Whole-Home Treatment

Hartford, CT



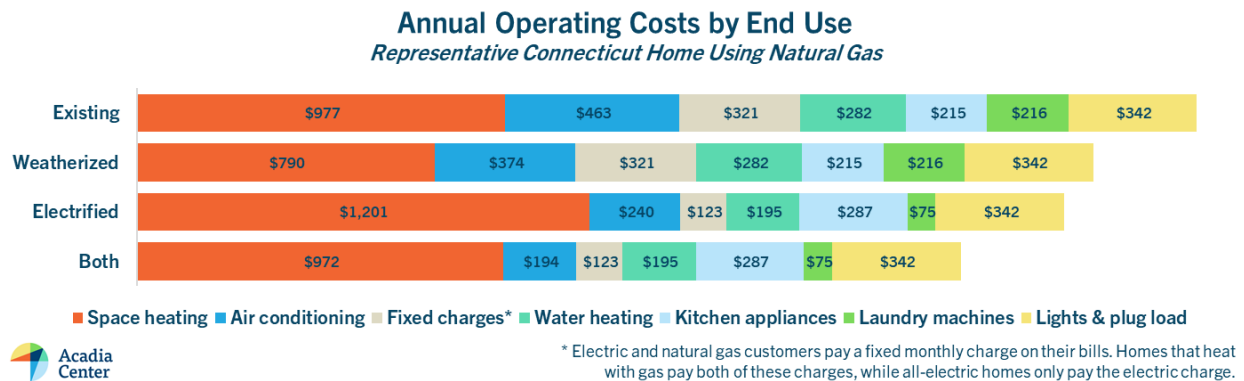
Source: 2021 AESC, PowerHouse Home Energy Simulator

* Cost of whole-home electrification, incl. deferred maintenance & program admin

** Cost of whole-home electrification and weatherization, incl. program admin & accounting for reduction in capital costs due to tighter envelope

equipment represents “low hanging fruit” and a far superior option to converting these customers to equipment that relies on gas.

Whole-home electrification can save money for Connecticut residents—about \$350 per year for an average gas-heated home in the state. Weatherization upgrades like insulation and air sealing can lead to even greater consumer savings. An average gas-heated home that undergoes common-sense energy efficiency improvements before electrifying its heating equipment can save about \$630 per year in operating costs, relative to current spending.



Furthermore, gas-heated homes that go all-electric can save \$198 per year before they even use any energy.³ In Connecticut, gas and electric ratepayers each pay a fixed monthly charge on their bill. Homes with a gas account pay both of these charges, but homes without gas service just pay the electric charge.

Connecticut’s Global Warming Solutions Act requires that the state reduce emissions by 80% by 2050, relative to 2001 levels. Electrifying only homes that use oil or propane for heat will not be enough to meet this target in the buildings sector. Acadia Center analysis demonstrates the significant emissions reduction that Connecticut can achieve by electrifying homes that use gas. Whole-home electrification will reduce emissions from a gas-heated home by 66% on day one^{4,5}—a reduction that increases over time as more renewables are added to the grid. Weatherization and electrification can reduce emissions by 70% or more when delivered together.

³ As of April 2022, natural gas fixed monthly charges in Connecticut range from \$15.64 per month for customers of Southern Connecticut Gas to \$18 per month for customers of Connecticut Natural Gas. Electric fixed monthly charges range from \$9.62 per month for customers of Eversource to \$12.84 per month for customers of United Illuminating. Weighted by number of residential customers, the average fixed charge is \$16.48 per month for gas ratepayers and \$10.24 per month for electric ratepayers.

⁴ Natural gas consists mostly of methane, which itself is a greenhouse gas with a 100-year global warming potential 28 times that of carbon dioxide, according to the IPCC’s [Fifth Assessment report](#). Studies show that a substantial volume of the natural gas that enters the distribution pipeline leaks into the air. Accurately accounting for this leakage, natural gas is much more harmful than current conventional wisdom suggests.

⁵ McKain et al. “Methane emissions from natural gas infrastructure and use in the urban region of Boston, Massachusetts.” Proceedings of the National Academy of Sciences of the U.S. (PNAS). February 17, 2015. <https://www.pnas.org/doi/10.1073/pnas.1416261112>

Acadia Center appreciates DEEP’s decision to direct the utilities to “develop a fuel-neutral approach to C&LM incentives that prioritizes energy savings irrespective of fuel type.”⁶ At the same time, in order to maximize benefits for ratepayers, heat pumps must be co-delivered with other supportive measures. DEEP should offer greater incentives for when heat pumps are paired with other supportive measures, including weatherization and demand response. **Acadia Center recommends an additional condition of approval for the C&LM plan that calls for enhanced incentives to electrify buildings that are already weatherized, as well as to offer greater incentives for implementing weatherization measures before electrification occurs.** Weatherization and whole-home electrification must be pursued together, and these additional conditions of approval are critical for ensuring that the benefits of weatherization and electrification are maximized and that electrification measures are not over-sized and overly costly

Finally, DEEP should set enforceable, statewide targets for clean heating deployment and weatherization of buildings, particularly for lower-income homes to help improve health outcomes and lower energy burdens. Traditionally, the success of clean heating and weatherization programs is measured, for the most part, based on aggregate energy savings. It is beneficial and necessary for Connecticut to remain committed to strong economy-wide energy savings, and prioritizing the highest-emitting homes—which are more likely to house lower-income and other marginalized occupants—is a critical strategy for maximizing climate and equity benefits. Clear, enforceable, statewide targets for clean heating deployment and especially weatherization in lower-income homes can ensure that funding and attention are directed towards the sectors that can produce the greatest benefits for ratepayers.

Cost-Effectiveness Reform

Acadia Center applauds DEEP’s efforts to adjust the cost-effectiveness screening to appropriately capture the impacts related to greenhouse gas emissions, we have some concerns regarding the specific recommendations in Attachment B. As is highlighted in Attachment B, Connecticut is one of only eight states that still uses a utility cost test (UCT) as its primary test, because it does not reflect benefits delivered by the programs to consumers or align with public policy mandates. As highlighted in Table 1, Connecticut’s cost-effectiveness test lags behind neighbor states’ on a number of other factors as well. As an interim step for the 2022-2024 Plan, utilizing the avoided energy supply cost (AESC) valuation of the social cost of carbon at the recommended level of \$128 per short ton for all measures *except* installation of new fossil fuel infrastructure is appropriate. This is the social cost of carbon adopted by Massachusetts in its current three-year plan. See DPU 20-120 through 20-129.

A Summary of States’ Cost-Effectiveness Testing Practices

Table 1 details the current cost-effectiveness testing practices in use in the Northeast, including practices related to environmental, health, safety, and economic benefits.

⁶ DEEP, Draft Determination: Approval with Conditions of the 2022-2024 Conservation and Load Management Plan, April 12, 2022, p. 12.

Table 1: State Energy Efficiency Screening Practices⁷ in the Northeast

	CT	ME	MA	NH	NY	RI	VT	
General								
Primary test	UCT	State	TRC	State	SCT	State	SCT	
Secondary test	TRC	UCT	None	None	UCT	None	None	
Assessment level	Program	Program	Initiative	Program	Portfolio	Portfolio	Portfolio	
Participant Benefits								
Economic well-being								
Thermal comfort								
Health & safety								
Societal Benefits								
Environmental								
Public health								
Energy independence								
Economic development								
Water resources								
Low-income considerations								
System Benefits								
Environmental compliance								
Fewer blackouts								
Increased resilience								

UCT: Utility Cost Test—assesses the benefit to the utility of investing in energy efficiency.

TRC: Total Resource Cost test—assesses the benefit to the utility and program participants.

SCT: Societal Cost Test, which assesses the benefit to society.

State-specific: jurisdictions may develop their own cost-effectiveness tests that more directly reflect policy goals.

Portfolio: all sectors, programs, and initiatives together.

Sector: customer type—for example, residential, commercial & industrial, or income-eligible.

Program: the category below “sector”—for example, residential existing homes or commercial new construction.

Initiative: the category below “program”—for example, residential retail products.

Recommended Changes to Connecticut’s BCR Test

In the longer term, Acadia Center recommends that Connecticut work to move toward a societal cost test, or at least a total resource cost test that integrates emissions, health, and safety benefits delivered by efficiency investments. Numerous studies have quantified the value of improved indoor air quality from efficiency upgrades, which can help to avoid all manner of negative outcomes from asthma to lost workdays. Accounting for these factors is critical to ensuring that BCAs fully reflect the known benefits of measures that reduce emissions.

Connecticut is counting on the energy efficiency programs to deliver a significant portion of the greenhouse gas reductions they must make by 2030. But without reforms to energy efficiency program design, delivery, and cost-effectiveness accounting the programs cannot deliver. The efficiency programs must make concerted investments in projects that promote environmental justice, health, and safety and rewarding holistic, whole-home projects that permanently displace fossil fuels.

⁷ National Energy Screening Project. Database of Screening Practices. Accessed June 2, 2021. [Accessible here.](#)

- Accounting for emissions, health, and safety improvements in cost-effectiveness testing is a necessary part of this task. Acadia Center recommends that all programs in the Northeast adopt these avoided cost categories, but not stop there.
- Less than a quarter of the region's homes generate half its residential sector emissions. Offering whole-home electrification and weatherization upgrades to these homes will slash emissions and dramatically reduce energy bills. Acadia Center recommends that programs target the least efficient homes with this holistic treatment as a way to maximize emissions reduction while improving cost-effectiveness under ACE mandates.
- Moderate-income, language-isolated, non-white, and renter households have not benefited from energy efficiency programs to the degree that more privileged households have. Programs must address this gap in service. Acadia Center recommends that state regulators allow program administrators to identify an amount of funding used for engagement with environmental justice communities and either leave this funding out of the cost-effectiveness test or count it as a benefit when engagement is successful.
- Current cost-effectiveness testing methods compare the cost of energy efficiency to that of serving energy needs in the manner currently supported by the market—they ask whether efficiency is cheaper than market prices. Acadia Center recommends that Northeast states study and ultimately adopt an Emissions Impact Metric and a Social Impact Metric as secondary tests, which can inform decisions about measure mix and incentive levels as programs step up their contribution to state emissions reduction and environmental justice efforts.

WAP and EEB Funding

Item # 15-WAP Coordination

The Utilities are directed to coordinate with DEEP and other relevant stakeholders to develop approaches to braid funding between the C&LM programs and the federally funded Weatherization Assistance Program (WAP), in order to leverage increased funding available through IIJA and other sources. DEEP will lead these coordination efforts, which may include meetings, data requests, and the co-development of strategies with stakeholders, including the Utilities.

The introduction to the Executive Summary for the 2022 State WAP plan is the following:

“The Connecticut Weatherization Assistance Program (WAP) provides low-income households across the state access to transformative and affordable energy efficiency improvements that reduce household energy expenditures. Over the course of five (5) years and during our last funding cycle (Program Year 2017 to 2021), Connecticut WAP weatherized 515 homes with lifetime savings of over \$7.2 million dollars. Connecticut WAP is on target to service many more households with an annual budget allocated through formula State funding for Program Year 2022 (PY22) totaling \$3,412,568 and with additional funding, pursuant to the Infrastructure Investment and Jobs Act (IIJA), amounting to \$46,215,781 over the next five years.”

In the same summary document for the WAP state plan item 2.4, and the Conclusion outline the goals:

2.4 Health and Safety Barriers

Health & Safety (H&S) Barriers such as mold, lead, asbestos and vermiculite impede the delivery of weatherization on income-eligible properties because they are required to be remediated before energy conservation measures can be deployed.

Connecticut WAP has created a pipeline of project leads for weatherization assistance through the Statewide Weatherization Barriers Remediation Program (WxBRP) that was developed in Program Year 2021 (PY). WxBRP was established as a three-year barrier remediation program that is targeted to remove H&S barriers in 1,000 CT homes. H&S deferrals from utility-managed energy affordability and Connecticut WAP will be fed into the barrier remediation program. The ultimate goal is to provide a pathway to high-performance affordable housing through low-income carveouts in energy program incentives.

3. Conclusion

Energy efficient buildings lead to lower energy costs for over-burdened households and addresses poor social determinants of health by improving air quality. Connecticut WAP is targeting a variety of programmatic changes to address barriers while scaling up program delivery.

The goals for the Equitable Energy Efficiency or E3 programs are directly in line with the goals of the WAP program:

Equitable energy efficiency programs will:

- Alleviate high energy burdens for low-income and underserved households
- Recognize and remediate past harm by prioritizing historically under-resourced communities
- Mitigate and eliminate barriers to low- to moderate-income participation in energy efficiency programs
- Drive accessible and transparent process to incorporate residents' priorities and lived experiences into program design and decision-making
- Ensure equitable access to the benefits of energy efficiency

Acadia Center urges DEEP to create a process to identify ways to create a seamless and effective path similar to the one used for Wx Barriers program now underway through Energize CT. It is imperative to enable the energy efficiency funds and the WAP funds to work together to address the most underserved housing in CT and the most vulnerable residents. Income -Eligible Customers need to be the primary focus for these resources for the following reasons:

- Energy burdens are higher for income-eligible households
- Providing weatherization services is a priority for this population
- Lower income households tend to have more health & safety barriers to weatherization
- Income-eligible residents have a harder time affording and accessing capital to remediate barrier issues

Acadia Center asks that there be clear timelines for this process to occur. Presently the 2022 COAs timeline for this item is “ongoing” and Acadia Center is suggesting that a concrete time line is designated for this item.

Item # 1 Responding to New Funding Sources

the Utilities are directed to identify specific Infrastructure Investment and Jobs Act (IIJA funding) opportunities that are relevant to the C&LM programs and for which they are eligible to apply. The Utilities should submit a preliminary list of these opportunities to DEEP by June 1, 2022. In recognition of the fact that guidance is not yet available for all IIJA funding opportunities, this list should be treated as a living document and updated at regular intervals to respond to new guidance. DEEP will lead coordination efforts associated with IIJA opportunities, which may include meetings, data requests, and the co-development of response strategies with stakeholders, including the Utilities

Acadia Center helped develop a list of potential fund sources to assist the energy efficiency programs ability to address the health and safety barriers that cause too many deferrals both in CT and the region:

Too many income-eligible weatherization clients are deferred due to health & safety issues

- Nationally, 10-30% of income-eligible weatherization clients are deferred due to health and safety issues
- More recent data shows client deferrals increasing.

State	Weatherization Deferral Rate
Connecticut	21% - 23% (2019, 2014 -2018)
Vermont	10% (2020)
Virginia	18% (2018 -19)
Washington	30-40%, higher in rural areas (2018)



Sources: NREL, Healthy Housing Opportunities During Weatherization Work, 2011. Energize Connecticut, Eversource Barrier Report, July 8 2020. Vermont personal communication with Weatherization Program Administrator February 2022, Community Housing Partners (CHP)N Energy Solutions, Utilizing Virginia RGGI Revenue to Support Existing Low-Income Energy Efficiency Programs by Addressing Health & Safety Needs of the Weatherization Assistance Program Providers, 2020. Washington State Energy Program: Memorandum Re: Rural Housing Rehabilitation Program, Report with Feedback From Rural Community Action and Weatherization Agencies, March 9, 2018 & "From Income Eligible to Achievable Low Income Weatherization in Washington State: Challenges and Opportunities" Schueler V Washington State University March 2021.

Potential funding sources to assist in address housing most in need:

Potential Barrier Remediation Funding

Federal	State, Utility, Other
<ul style="list-style-type: none">• LIHEAP• WAP – potential new funds• ARPA• Infrastructure (IIJA)?	<ul style="list-style-type: none">• State appropriation• State fee on all fuels• Philanthropic funds• Regional Energy Funding (RGGI, FCM)• Utility programs



Acadia Center urges DEEP to continue to include all sources of funding that will help attain the goals that outlined in this COA Item 1.

Conclusion

Acadia Center thanks DEEP on their work on developing the CLM COAs, and we look forward to opportunities to remain engaged in the development of the final CLM 2022-2024 plan.

Sincerely,

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