

# GREEN BUILDING REGISTRY® DATA ECOSYSTEM

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*To meet the climate realities we face as a country, our housing market must recognize the elements of homes that create climate risk and value the characteristics of homes that provide climate solutions. Earth Advantage is focused on connecting home energy information to the broader real estate market so that it can be factored in by appraisal and lending professionals.*



## ABOUT EARTH ADVANTAGE

Earth Advantage is a nonprofit organization working to advance an informed and humane housing market that:

- Acknowledges both the climate impacts of housing and the impact climate has on housing
- Provides all home buyers and renters with access to sustainability information about a home
- Supports equitable housing outcomes, protecting those most vulnerable from the effects of climate change
- Recognizes both the personal and societal financial value that climate-friendly housing creates

Headquartered in Portland, OR, Earth Advantage partners with entities across the country to develop tangible, systemic solutions for climate-friendly housing.



## ABOUT THE GREEN BUILDING REGISTRY®

Since 2017 the Green Building Registry® (GBR), a SaaS (Software-as-a-Service) and data aggregation platform, has provided home performance data to homeowners, real estate agents, appraisers, and lenders across the US.

GBR is a wholly owned and self-funded initiative of Earth Advantage. It is the largest single source of building performance data in the United States. With nearly three million records and growing, GBR partners with Program administrators to make their program data accessible to the market. Open data is available for discovery on the free public website at **[us.greenbuildingregistry.com](https://us.greenbuildingregistry.com)**. To support data auto-population into real estate listings, licensing agreements are available to utilize the GBR API (Application Programming Interface).

# INTRODUCTION

To value the sustainable, renewable, and energy-efficient assets of a home, real estate stakeholders need trustworthy data at the time of sale. As more homes receive home energy assessments, have rooftop solar and/or batteries installed, and receive third-party home certifications, it is critical that third-party documentation is created, and the real estate marketplace integrates this information into the marketing and financing of a home. It also reduces instances of greenwashing, the unsubstantiated claim that the property is more environmentally friendly than it is, as the information is available to be easily verified.

In locations where the third-party documentation is automatically integrated into listings, the results have been very meaningful to sellers and buyers. Investments in higher performance are being capitalized in those markets to a much higher extent than elsewhere.<sup>1</sup>

The ideal flow, as numbered in the graphic, is when the data and reports get added to a real estate listing. This allows for property sales to be influenced by home performance data, and then the appraiser can also use this information to establish the appropriate valuation. Lenders can more easily guide buyers towards preferential green mortgage products and better measure the climate impact of housing in their loan portfolios. This information is then used to support the issuance of Green Mortgage-Backed Securities (MBS) and Environmental Social and Governance (ESG) reporting which supports the investment market seeking holdings with a climate-friendly impact.

While this ideal scenario is largely not happening today, except where the disclosure is mandatory, the hope is that this data flow will become more prevalent in the future as more buyers expect and demand better home performance. In the meantime, the team at GBR is supporting each of these initiatives independently. This is being driven by consumer and market demand, ESG reporting requirements for publicly traded companies, tax and monetary incentives to build more energy-efficient buildings and improve the existing building stock, the passage of the Inflation Reduction Act, and greater human awareness about the impact that our buildings and homes have on the climate.<sup>2</sup>

# GBR DATA ECOSYSTEM



# OPEN DATA

Treating building performance data as open data offers several benefits, both to the general public and specific stakeholders involved in construction and real estate, government, policy, appraising, lending, and investing industries. Here are some of the key advantages:

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**Transparency and Accountability:** Open data promotes transparency in the building sector by making information about building performance easily accessible to the public. This transparency can hold property owners, developers, and builders accountable for the quality and energy efficiency of their buildings. In that regard, it is like the public grading that restaurants receive from health departments. Transparency builds trust.

**Energy Efficiency and Sustainability:** Open building performance data can help identify energy inefficiencies and opportunities for improvements. This can lead to more sustainable construction practices for new construction and motivate upgrades in older buildings. Both result in reduced energy consumption which contributes to environmental goals and climate change mitigation.

**Informed Decision-Making:** Open data enables policymakers, city planners, and investors to make informed decisions about building regulations, zoning, and investment in infrastructure. It allows them to better understand local trends in building performance and what that means for the real estate market.

**Data-driven Decision Making:** MLSs and the real estate industry can use this data to enable data auto-population and help consumers make better data-driven decisions, ultimately providing a greater

service to their members and improving their effectiveness in serving customers.

**Innovation:** Researchers, startups, and entrepreneurs can use open building performance data to achieve new insights which can help develop new technologies and solutions for the construction and real estate industries. This can drive innovation in areas such as energy management, smart buildings, and sustainable design.

**Benchmarking and Standards:** Open data facilitates benchmarking of building performance against established standards and best practices in meaningful ways. This can help identify under performing buildings and guide efforts to meet or exceed industry benchmarks. Limiting access to this data leads to limited beneficial activity.

**Third-party Data Collection:** The veracity of the data is extremely important when being used by various entities for a variety of purposes, especially for financing and investing. All the data in GBR has been collected by trained and certified third-party professionals and has gone through a QA (quality assurance) process by the originating data entity.

**Community Engagement:** Open data can be used to engage local communities in discussions about building performance and sustainability. Trends comparing neighborhood demographics with

neighborhood building performance can be illuminating. Citizens can become more aware of the environmental impact of buildings and advocate for policies that promote sustainable construction.

**Resilience and Disaster Preparedness:**

Building performance data can be crucial for assessing the resilience of structures to natural disasters and climate change-related events. This information can inform disaster preparedness plans and retrofitting efforts.

**Data-Driven Policies:** Government agencies can use open data to develop evidence-based policies and regulations

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that support energy efficiency and sustainability goals. These policies can drive positive changes in the building industry. We are seeing this now as more energy labeling policies are developed and mandated at the time of listing or sale. Data is needed to measure the climate impact of our buildings and homes.

**Job Creation:** The open data ecosystem can create job opportunities in data analysis, building assessment, and related fields, as well as in the development of tools and software for handling and visualizing building performance data.

In summary, making building performance data available as open data benefits society by promoting transparency, sustainability, informed decision-making, and innovation in the construction and real estate sectors. It can lead to more energy-efficient, environmentally friendly, and economically sound buildings and communities.

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## REPORTING

For residential buildings, a Home Energy Report, also known as a Home Energy Audit or Assessment, provides homeowners with valuable information about their home's energy performance and offers recommendations for improving energy efficiency. Here are some benefits of having a Home Energy Report:

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**Energy and Cost Savings:** One of the primary benefits is identifying areas where energy consumption can be reduced, and utility bill savings recognized. The report may suggest simple changes like sealing drafts, improving insulation, or upgrading appliances, which can lead to significant long-term savings. It may also suggest replacement of heating, cooling, or water heating equipment with efficient new models.

**Environmental Impact:** Reducing energy consumption in the home helps lower the carbon footprint. This is beneficial for the environment as it contributes to reducing greenhouse gas emissions from fossil fuel combustion, which are a major factor in climate change.

**Improved Comfort:** A Home Energy Report can identify areas in the home where temperature fluctuations are common. By addressing these issues, a more comfortable living environment can be created, especially in extreme weather conditions.

**Health Benefits:** A well-audited home can have improved indoor air quality, as it often involves checking the ventilation systems and identifying any potential issues like mold or radon. This can lead to a healthier living space.

**Increased Property Value:** Energy-efficient homes are becoming more attractive to buyers, and having an energy audit report can be a selling point at time of resale. It can also improve the overall marketability of the property if energy improvements have been documented.

**Access to Incentives:** Many regions offer incentives and rebates for energy-efficient upgrades. A Home Energy Report can help identify which upgrades qualify for these incentives, potentially offsetting some of the costs.

**Peace of Mind:** Knowing that a home is running efficiently and safely provides homeowners with peace of mind. It supports a feeling of confidence that steps are being taken to reduce energy waste and lower utility bills.

**Long-Term Savings:** While some energy-efficient upgrades may have upfront costs, they often provide a return on investment in the form of lower energy bills over the long term. A Home Energy Report helps prioritize upgrades that are most cost-effective.

**Customized Recommendations:** The report is tailored to the specific home and its unique energy usage patterns. This means that the recommendations provided are relevant and actionable, addressing the specific needs of the property.

**Compliance with Regulations:** In some areas, there are regulations and requirements related to energy efficiency in homes. A Home Energy Report can help ensure that the home meets these standards, preventing potential legal issues down the road.

**Market Transformation Planning:** The Inflation Reduction Act requires any state utilizing federal funds to provide HOMES and HEAR incentives to improve the energy efficiency of the housing stock, and also provide a plan to get this information accounted for in the real estate transaction process at the time of resale. This is exactly the information that GBR provides to the market today.

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In summary, a Home Energy Report offers numerous benefits, including cost savings, environmental benefits, improved comfort, and increased property value. It's a valuable tool for homeowners looking to reduce energy consumption, lower their utility bills, and create a more sustainable and comfortable living environment.



# REAL ESTATE

Auto-populating data into real estate listings offers several benefits that can streamline the process of creating, updating, and managing property listings. Here are some of the advantages:

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**Time Efficiency:** Automating the data entry process saves significant time for real estate professionals. Instead of manually inputting the building performance property details, utilizing the GBR API system can automatically pull data from the Green Building Registry and populate the listing template.

**Reduced Errors:** Human errors in data entry can lead to inaccurate listings, which can be frustrating for both real estate agents and potential buyers. Auto-population reduces the likelihood of errors and ensures that property information is consistent and up to date.

**Consistency:** By using predefined templates and the RESO (Real Estate Standards Organization) standardized data fields, auto-population ensures that all listings follow a consistent format and contain essential information. This consistency enhances the professionalism of the listings and makes it easier for clients to compare properties.

**Improved Listing Quality:** Auto-populating this data can lift the overall quality of the listings with enhanced data content which can attract more potential buyers and lead to quicker sales.

**Faster Updates:** When energy rates change and more properties have this data available, connecting to the GBR API ensures that potential buyers always have access to the most current information.

**Enhanced SEO and Online Visibility:**

Well-structured and up-to-date listings can improve a real estate agency's online visibility. Search engines favor websites with accurate and relevant content, potentially driving more organic traffic to the listings.

**Market Competitiveness:** In a market increasingly focused on sustainability, properties with good energy efficiency ratings may be more competitive and attractive to a broader range of tenants and buyers. Including this information can make a listing stand out.

**Portfolio Management:** Franchises and Brokerages with a large real estate portfolio can use energy efficiency data to identify trends and patterns. This can help them make informed decisions about future investments and assess the overall sustainability and risk of their real estate holdings. In addition, it can support reporting for green mortgage-backed securities and ESG (Environmental Social, and Governance) reporting requirements.

**Improved Customer Experience:** Auto-populated listings can include additional information that enhances the customer experience and provides valuable insights to potential buyers. When a MLS adds the building performance data from GBR, it enables a buyer to factor sustainability into their decision-making process. This data also provides insights into the total cost of ownership allowing a buyer to make a more informed decision.



**Integration with Multiple Platforms:** Real estate professionals often list properties on various platforms, including their own websites, multiple listing services (MLS), and third-party real estate websites. Auto-population tools can sync data across these platforms, reducing the need for manual updates.

**Cost Savings:** While there may be initial setup costs associated with implementing auto-population systems, the long-term

benefits, including reduced labor costs and increased efficiency, can lead to substantial savings for real estate agencies.

**Competitive Advantage:** Embracing technology and automation can give real estate companies and professionals a competitive edge in a crowded market. Buyers and sellers may be more inclined to work with agents who provide accurate, up-to-date listings and a seamless online experience.

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In summary, data auto-population in real estate listings streamlines processes, reduces errors, improves listing quality, and enhances the overall customer experience. It offers several advantages that can benefit both real estate professionals and their clients. Adding data from the Green Building Registry provides a more holistic view of the market and provides the information more buyers are searching for in the current market.

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## VALUATION

Including energy efficiency information in real estate listings can offer several benefits for property valuation. These benefits can have positive effects on both buyers and sellers, as well as on the broader real estate market and the environment. Here are some of the key advantages:

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**Increased Marketability:** Energy-efficient homes are increasingly popular among buyers due to their potential for cost savings on utilities. Including energy efficiency information in listings can make a property more attractive to potential buyers by removing uncertainty about that factor, potentially leading to a quicker sale and a higher selling price.

**Improved Property Valuation:** Energy-efficient features are sought after by most buyers<sup>3</sup> and therefore can increase the value of a property. By providing specific

details about a home's energy efficiency, such as the insulation type, HVAC system efficiency, and the presence of energy-efficient appliances, appraisers can more accurately assess a property's value.

**Lower Operating Costs:** Energy-efficient homes typically have lower utility bills, which can make them more affordable to live in over time. Buyers may be willing to pay a premium for a home that offers long-term cost savings<sup>4</sup>, and this premium can be reflected in the property's valuation.

**Environmental Benefits:** Energy-efficient homes have a reduced carbon footprint, which is important to environmentally conscious buyers. Including energy efficiency information in listings helps highlight a property's eco-friendliness, attracting buyers who prioritize sustainability.

**Access to Incentives:** Some governments and utility companies offer incentives, rebates, or tax credits for energy-efficient homes or renovations. Including information about these potential financial benefits in listings can make a property more appealing to buyers.

**Long-Term Investment:** Energy-efficient features can increase a property's long-term value by making it more resilient to energy price fluctuations and future regulations on energy efficiency. This long-term stability can positively impact property valuations.

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**Appraisal Accuracy:** Including energy efficiency information in listings ensures that appraisers have access to relevant home performance data when assessing a property's value. This can help determine the attributable value so that energy-efficient improvements are properly considered in the appraisal process.

**Total Cost of Ownership Insights:** Energy efficiency information helps buyers have a clearer understanding of the true costs and benefits associated with a property, leading to more informed decision-making.

**Resilience to Future Regulations:** As energy efficiency standards continue to evolve and become more stringent, homes with verified existing energy-efficient features may be better positioned to meet future requirements.

Incorporating energy efficiency information into real estate listings not only benefits individual buyers and sellers but also contributes to a more sustainable and resilient real estate market. Without this information included in a listing, an appraiser can't include it as part of the valuation process. It helps align property valuations with the true economic and environmental impacts of a home's energy efficiency, fostering a more accurate and informed real estate marketplace.

# LENDING

Energy efficiency information in real estate listings can provide several benefits for lending institutions. Here are some of the key advantages:

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**Risk Assessment:** Lenders can use energy efficiency data to assess the risk associated with a property. Energy-efficient homes tend to have lower operating costs, which can make it easier for borrowers to meet their mortgage obligations. This has been shown to reduce the risk of default, benefiting both the lender and the borrower.<sup>5</sup>

**Property Valuation:** Energy-efficient features can increase the value of a property. Lenders can request home performance documentation to be used to make more accurate appraisals, potentially allowing borrowers to secure larger loans or lower interest rates or reducing the need for private mortgage insurance (PMI).

**Marketability of Foreclosed Properties:** Energy-efficient homes are increasingly in demand due to environmental concerns and cost savings. Providing energy efficiency information can make a property more attractive to buyers, which can help lenders sell foreclosed or repossessed properties more quickly.

**Compliance with Regulations:** Some regions have regulations or incentives related to energy efficiency. Lenders can use this information to ensure compliance and take advantage of available incentives, which can improve the overall financial health of the lending portfolio.

**Portfolio Management:** Lenders with a large real estate portfolio can use energy efficiency data to identify

trends and patterns. This can help them make informed decisions about future investments and assess the overall sustainability and risk of their real estate holdings. In addition, it can support reporting for green mortgage-backed securities and ESG (Environmental Social, and Governance) reporting requirements.

**Sustainability Goals:** Many lending institutions have sustainability goals and commitments. Encouraging energy-efficient properties aligns with these goals and can improve the institution's image and reputation.

**Marketing Advantage:** With standard access to home performance data, lenders can differentiate themselves in the market by offering specialized loans or incentives for energy-efficient properties. This can attract environmentally conscious borrowers and help the lender stand out in a competitive market.

**Environmental Impact:** Promoting energy efficiency in real estate can contribute to reducing greenhouse gas emissions and conserving resources. Lenders can align with environmental goals and regulations by supporting the ownership of energy-efficient properties.

**Long-term Value:** Energy-efficient properties tend to hold their value better over time. This can provide lenders with more security in their loans and reduce the potential for loss in case of foreclosure.

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In summary, including energy efficiency information in real estate listings can be a win-win for both lenders and borrowers. It helps lenders make more informed lending decisions, supports their ESG reporting initiatives, Green MBS issuance, reduces risk, and aligns with sustainability goals, while also benefiting borrowers through lower operating costs and potential financial advantages.

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## INVESTING

Energy efficiency information in real estate listings can provide several benefits for ESG (Environmental, Social, and Governance) reporting, which is becoming increasingly important for investors, stakeholders, and companies. Especially for those who are interested in making environmentally conscious and financially savvy decisions. Here are some key benefits:

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**Transparency and Accountability:** An MLS or brokerage supporting energy efficiency information in real estate listings demonstrates a commitment to transparency and accountability in ESG reporting. It allows potential buyers, investors, and tenants to make more informed decisions about the environmental performance of a property.

**Alignment with ESG Goals:** Many institutional investors and funds prioritize investments that align with Environmental, Social, and Governance (ESG) criteria. Open data enables issuers of green mortgage-backed securities to more easily bundle properties based on third-party documented home performance and allows bond raters to confirm that information.

**Compliance with ESG Frameworks:** Many ESG reporting frameworks, such as the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB), require companies to disclose

information related to energy efficiency and environmental performance. Open data and including this information in real estate listings helps ensure compliance with these frameworks.

**Risk Assessment:** ESG reporting often involves assessing and managing various risks, including environmental risks. Energy efficiency information helps stakeholders understand how a property is positioned to mitigate climate-related risks compared to market norms, contributing to better risk assessment and management.

**Risk Mitigation:** Climate change-related risks, such as rising energy costs, extreme weather events, and environmental regulations, can impact the financial performance of real estate investments. Energy-efficient buildings are often more resilient to regulatory changes, extreme weather events, and market trends related to energy and sustainability. By highlighting energy efficiency features, real estate listings can showcase reduced operational

risks associated with energy consumption and associated costs. Energy-efficient properties are better positioned to mitigate these risks, providing more stable returns for investors.

**Enhanced Asset Value:** Energy-efficient buildings are often more valuable in the real estate market. By including energy efficiency information, property owners can demonstrate the potential for increased property value over time, which can be an attractive prospect for real estate investors. By highlighting energy efficiency features in listings, investors can potentially command higher selling prices or rental rates for their properties.

**Alignment with Sustainable Goals:** Energy efficiency data in real estate listings aligns with broader sustainable development goals, such as reducing carbon emissions and combating climate change. Companies that prioritize sustainability can use this information to showcase their commitment to these goals.

**Improved Stakeholder Relations:** Providing energy efficiency information can enhance relationships with stakeholders, including investors, tenants, and regulators, who are increasingly interested in the environmental performance of real estate assets.

**Long-Term Sustainability:** Energy efficiency improvements have long-term sustainability benefits, reducing a property's environmental footprint and contributing to a more sustainable future. Real estate listings with energy efficiency information can help communicate this commitment.

**Reduced Operating Costs:** Energy-efficient properties typically have lower utility bills and operational costs, making them more cost-effective to operate. Investors can enjoy reduced operational expenses, resulting in higher net income and potentially higher returns on investment. This can be a significant selling point for potential buyers or tenants, as it can lead to long-term cost savings, which is an important financial aspect of ESG reporting.

**Attracting Eco-Conscious Tenants:** In a growing environmentally conscious market, tenants may actively seek out energy-efficient properties. Highlighting these features in listings can attract tenants who are willing to pay a premium for sustainable living, leading to higher rental income and lower vacancy rates.

**Regulatory Compliance:** In some regions, there are energy efficiency disclosure requirements for real estate transactions. By providing this information upfront, investors can avoid potential legal issues and streamline the transaction process.

**Access to Green Financing:** Many financial institutions offer incentives and lower interest rates for green or energy-efficient properties. By showcasing the energy efficiency of a property, investors may qualify for more favorable financing terms, reducing the cost of capital.

**Enhanced Resilience:** Energy-efficient buildings are often better equipped to withstand extreme weather events, which are becoming more frequent due to climate change. This can reduce repair and maintenance costs for investors and improve the long-term resilience of the property.

**Positive Public Relations:** Investors can enhance their public image by promoting environmentally responsible real estate investments. This can attract socially conscious investors, partners, and customers who value sustainability.

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**Future-Proofing Investments:** As energy efficiency standards and regulations continue to evolve, energy-efficient properties are more likely to remain compliant and competitive in the market. Investors can position themselves for long-term success by investing in properties that meet or exceed these standards.

In summary, providing energy efficiency information in real estate listings not only benefits the environment but also offers financial advantages to investors. It can improve property values, reduce operating costs, attract eco-conscious tenants, and align with regulatory requirements and ESG goals, making it a valuable strategy for both financial and sustainability-minded investors. It also enhances transparency, reduces risks, lowers operating costs, and aligns with sustainability goals. This information can attract environmentally conscious investors and tenants, ultimately contributing to the overall ESG performance of a property or real estate portfolio.

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## CONCLUSION

Using the building performance data from the Green Building Registry supports market transformation in the real estate and construction sectors by promoting transparency, sustainability, energy savings, and informed decision-making. It adds value to property datasets by providing insights for climate action plans, MLS data licensing, policy development, and greater transparency around property condition, and total cost of ownership. This additional data helps build confidence and trust in the market by providing a more holistic view of the property. It benefits various stakeholders, including building owners, investors, tenants, and society as a whole, by driving improvements in building performance and environmental sustainability resulting in a positive climate impact.

Please let us know how we can support you in any of your data ecosystem needs. You can reach us at [www.earthadvantage.org/home-data/gbr-form.html](http://www.earthadvantage.org/home-data/gbr-form.html) or email [meg@greenbuildingregistry.com](mailto:meg@greenbuildingregistry.com).



# RESOURCES

1. Effects of Mandatory Energy Efficiency Disclosure in Housing Markets  
**[e2e.uchicago.edu/pdf/workingpapers/WP044.pdf](https://e2e.uchicago.edu/pdf/workingpapers/WP044.pdf)**
2. Working Paper 23-05: When Climate Meets Real Estate: A Survey of the Literature  
**[www.fhfa.gov/PolicyProgramsResearch/Research/Pages/wp2305.aspx](https://www.fhfa.gov/PolicyProgramsResearch/Research/Pages/wp2305.aspx)**
3. 2023 REALTORS® & Sustainability Report – Residential; National Association of REALTORS® Research Group - **[www.nar.realtor/sites/default/files/documents/2023-realtors-and-sustainability-residential-05-03-2023.pdf](https://www.nar.realtor/sites/default/files/documents/2023-realtors-and-sustainability-residential-05-03-2023.pdf)**
4. How Does Home Energy Score Affect Home Value and Mortgage Performance?  
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5. Energy Efficiency: Value Added to Properties & Loan Performance  
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