

Provincial and Municipal Ultra-Low Energy Incentive Policies: Data Overview

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Ultra-low energy buildings originated from renewable energy pilot projects in Europe. In the early 1990s, German physicist Wolfgang Feist and Swedish scholar Bo Adamson established the Passive House Institute (PHI) to systematically develop the concepts and standards of ultra-low energy buildings. The concept gained initial traction in Germany and was later introduced into China. In 2007, China began embracing this concept, initiating related research and construction projects. With the completion and promotion of domestic passive ultra-low energy building demonstration projects, the technical systems surrounding these buildings have been standardized. In 2015, the Ministry of Housing and Urban-Rural Development issued the *Technical Guidelines for Passive Ultra-Low Energy Green Buildings (Trial) (Residential Buildings)*, which formally introduced the idea of "developing passive buildings," marking the inclusion of passive buildings in the national development agenda. Following this, various regions implemented policies to support the growth of ultra-low energy buildings.

In earlier policy documents, terms such as "passive low-energy buildings," "passive ultra-low energy buildings," "passive ultra-low energy green buildings," and "passive houses" were used to describe the building technology system derived from the German Passive House model. However, over the past five years, "ultra-low energy building" has emerged as a specialized term, distinctly separated from other informal expressions. As such, our focus is on incentive policies that explicitly refer to "ultra-low energy buildings."

Data Collection Strategy

In collecting incentive policies related to ultra-low energy buildings, we first focused on provincial-level administrative regions, followed by prefecture-level cities. The collection process involved using Baidu and Google search engines with the query "ultra-low energy building incentive policy [region name]." We also reviewed the original sources of policies on the official websites of local governments, finance departments, and development and reform commissions. A total of 38 relevant policies were gathered.

Summary of Data Results

According to the search results, current ultra-low energy building incentive policies can be divided into two categories (as indicated in the data table): (1) policies without defined subsidy criteria, accounting for approximately 40%, and (2) policies with clear subsidy standards, accounting for around 60%. The policies without defined subsidy criteria focus primarily on macro-level guidance and do not specify detailed incentive measures. For policies with clear subsidy standards, the tools used can be categorized into four types: financial subsidies, tax incentives, financial credit, and recognition-based incentives, as detailed below:

- Financial subsidies: More than 90% of the policies feature clear financial subsidies. Most provinces and cities provide subsidies for ultra-low and near-zero energy buildings,

calculated based on the building area, with amounts ranging from 50 to 1,000 yuan per square meter. Limits are also placed on the total subsidy for individual building projects, ranging from 300,000 to 30 million yuan. The scale of financial subsidies varies significantly between regions and is closely linked to the region's level of economic development. These subsidies apply not only to new construction projects but also to energy-saving retrofits and green renovations of existing buildings. For example, provinces such as Guangxi and Guizhou provide financial support for the green retrofitting of existing structures. Additionally, some regions offer dedicated funding for the research and development of green building technologies and the establishment of standards.

- Tax incentives, financial credit, and recognition-based incentives: A small portion of policies mention tax reductions for companies involved in the production and construction of ultra-low energy buildings. Some policies also offer preferential loans for purchasing ultra-low energy building properties, including increased loan limits and priority disbursement. However, most policies are vague regarding tax incentives and financial credit, lacking detailed explanations of specific support mechanisms. In terms of recognition, some policies grant a “green channel” for ultra-low energy building projects applying for major construction awards, such as the China Construction Engineering Luban Prize and the Guangsha Award.

Regarding the departments issuing these policies, most are led by local construction departments (e.g., construction bureaus and urban-rural construction management committees), development and reform commissions, and finance departments. The sole exception is the *Notice on Several Policy Measures Supporting Green, Low-Carbon, High-Quality Development in Inner Mongolia*, issued jointly by several national-level departments.

Future Research Outlook

Considering the vast number of prefecture-level cities in China, our ongoing work utilizes the large language model kimi.ai to conduct individual searches for each city, ensuring comprehensive coverage without omissions. Kimi.ai's ability to access real-time internet data allows it to autonomously read policy documents and retrieve content related to ultra-low energy building policies. With the integration of kimi.ai, the number of policy data entries is expected to surpass 300¹. Preliminary research indicates that the policies retrieved via kimi.ai predominantly consist of macro-level guidelines without clearly defined subsidy standards². This outcome reinforces the validity of our data collection strategy, as it successfully captures all provincial and municipal ultra-low energy building incentive policies with clear subsidy criteria across the country.

¹ China currently has 293 prefecture-level cities.

² For example: "Pilot projects for ultra-low energy buildings, near-zero energy buildings, and low-carbon buildings will be initiated. Efforts will be coordinated to advance energy-saving renovations of existing urban residential buildings, municipal infrastructure, and older residential areas, while encouraging the application of market-based models for the green transformation of public buildings."

Evaluation of Policy Effectiveness

We propose three hypotheses regarding the effectiveness of existing incentive policies for ultra-low energy buildings:

First, policies that specify clear subsidy standards are more effective than those that do not. Policies with well-defined subsidy criteria provide a structured framework that allows developers to incorporate anticipated subsidies into their financial planning, thereby reducing costs. In contrast, policies without clear guidelines often only vaguely express "encouragement" or "support," making them less appealing to developers.

Second, direct financial subsidies tend to be more effective than other incentives, such as tax relief, credit facilitation, or honorary recognition. Financial subsidies are usually awarded based on the area of ultra-low energy buildings and are provided as cash rewards, offering a more tangible incentive. Estimates suggest that the financial gains from subsidies surpass those of other policy instruments.

Finally, policies that explicitly designate the responsible implementation departments tend to be more effective. In some regions, such as Urumqi in Xinjiang, policy documents clearly state which government department is accountable for each policy, ensuring that responsibilities are well-defined and facilitating effective implementation.

Future Policy Recommendations

Based on an initial analysis of the current incentive policies for ultra-low energy buildings, we propose two policy recommendations:

First, establish clear subsidy standards that are aligned with local economic development levels and real estate prices. Currently, the subsidy standards for ultra-low energy buildings vary across regions and do not always correspond to local economic conditions. Local governments should set realistic and sustainable subsidy standards that reflect their fiscal capacity. The standards should be neither overly ambitious, exceeding local fiscal limits, nor too modest to drive the development of ultra-low energy buildings.

Second, adopt a comprehensive approach to policy design, combining multiple policy instruments and specifying the departments responsible for policy implementation. The current policies for incentivizing ultra-low energy buildings tend to be narrow in scope, often focusing solely on a single financial subsidy or offering broad guidance without specifying subsidy criteria. Additionally, these policies are typically issued by individual departments, such as the Development and Reform Commission or financial authorities, without sufficient interdepartmental collaboration. Moving forward, local governments should employ a broader range of policy tools, including financial subsidies, tax incentives, and credit support, while also offering honorary incentives such as priority in awards and recognition. Furthermore, each policy should clearly state the responsible department to ensure effective execution and achieve optimal outcomes.

省市超低能耗激励政策：数据说明

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超低能耗建筑起源于欧洲的可再生能源应用试验。20 世纪 90 年代初期，德国物理学家 Wolfgang Feist 和瑞典学者 Bo Adamson 建立了被动房研究所（Passive House Institute，

PHI)，开始对超低能耗建筑的理念和标准进行系统研发，这一概念在德国得到初步发展，并被逐步引入中国。2007 年起，中国开始引入这一理念并展开相关研究和项目建设。随着国内被动式超低能耗建筑示范项目的落成和推广，相关技术体系得到规范。2015 年，住房和城乡建设部发布《被动式超低能耗绿色建筑技术导则（试行）（居住建筑）》，首次提出“发展被动式建筑”，这标志着被动式建筑进入国家发展规划的视野。此后，各地纷纷出台政策，支持超低能耗建筑发展。

在过去的政策文件中，曾使用过“被动式低能耗建筑”、“被动式超低能耗建筑”、“被动式超低能耗绿色建筑”、“被动式房屋”等词语来指代衍生自德国被动房的建筑技术体系；而在近五年的文件中，“超低能耗建筑”已被作为专门术语与其他非正式的表述区分开来。鉴于此，我们重点关注明确写出“超低能耗建筑”（ultra-low energy building）的激励政策。

数据搜集策略

对于超低能耗建筑激励政策的搜集，我们先搜集省级行政区的相关政策，再搜集地级市相关政策。在搜集时，首先，使用百度和 Google 搜索引擎搜索“超低能耗建筑 激励政策 地区名”；其次，在各地政府官网和财政局、发展与改革委员会等部门官网上查找相关政策的原始出处。我们共搜集到 38 条相关政策。

数据结果简介

根据检索结果，目前出台的超低能耗建筑激励政策可分为两大类（已在数据表格中标明）：一是无明确奖补标准的，约占 40%；二是有明确奖补标准的，约占 60%。无明确奖补标准的激励政策以宏观指导为主，没有提及具体的激励措施。而对于有明确奖补标准的激励政策，根据其使用的政策工具大致可分为财政补贴、税收优惠、金融信贷、荣誉激励四类，具体如下：

财政补贴。明确的财政补贴占政策工具的 90%以上，多数省市对超低能耗建筑和近零能耗建筑提供按建筑面积计算的补贴，数额在 50 元-1000 元每平方米不等。同时，单一建筑项目的财政补贴数额设置上限，数额在 30 万元-3000 万元不等。各地的财政补贴力度差异较大，与地区经济发展水平正相关。补贴不仅针对新建项目，还包括既有建筑的节能改造和绿色化改造。例如，广西和贵州等省份在推动既有建筑的绿色化改造时也提供了相应的财政支持。此外，部分地区还针对绿色建筑的技术研发和标准制定提供专项资金支持。

税收优惠、金融信贷和荣誉激励。小部分政策提及了对于从事超低能耗建筑生产、建设的相关企业下调税率。此外，有政策提及对购买超低能耗建筑商品房的贷款优惠，即上浮最高可贷额度和优先放贷等。然而，绝大多数政策在税收优惠和金融信贷方面语焉不详，缺乏对具体支持手段的详细阐述。在荣誉激励方面，有政策对超低能耗建筑项目申报各类建筑奖项（如中国建筑工程鲁班奖、广厦奖等）开放“绿色通道”。

在政策颁发的部门方面，绝大多数政策由当地建设部门（如建设局和城乡建设管理委员会等）、发展与改革委员会、财政局牵头。唯一的例外是内蒙古自治区的《国家发展改革委等部门关于支持内蒙古绿色低碳高质量发展若干政策措施的通知》，该政策由多个国家部门联合颁布。

未来研究展望

鉴于中国的地级市众多，我们正在进行中的工作借助大语言模型 kimi.ai 对地级市逐个搜索，以避免遗漏。kimi.ai 具有实时读取互联网信息的优势，可以自行阅读政策文件，检索与超低能耗建筑相关的政策内容。使用 kimi.ai 后，政策数据结果可达 300 条以上³。初步

³ 中国现有 293 个地级市。

研究表明，使用 kimi.ai 检索的政策结果以无明确奖补标准的宏观指导为主⁴。这验证了我们数据搜集策略的有效性，它的结果基本囊括了全国各省市有明确奖补标准的超低能耗建筑激励政策。

政策有效性评述

对于现有超低能耗建筑激励政策的有效性，我们提出以下三点假说：

首先，有明确奖补标准的政策效果好于无明确奖补的。显然，有明确奖补标准的政策做到了“有章可循”，能够使建筑商将未来可获得的奖补数额纳入预算体系，有效降低建筑商的成本。相对而言，无明确奖补的政策只是泛泛提及某种“鼓励”或“支持”，很难对建筑商产生吸引力。

其次，给予财政补贴的政策效果好于给予税收优惠、金融信贷和荣誉激励的。财政补贴大多依据超低能耗建筑面积，给予现金奖励，这种奖励手段更加直观。经估算，财政补贴给建筑商带来的收益也高于其他政策工具。

最后，在政策文件中明确写出实施部门的政策效果好于未指明的。在部分地区（如新疆乌鲁木齐）颁发的政策文件中，每条政策结尾都注明了具体负责的政府部门，这使得各部门责任明确，有利于政策切实执行。

未来政策建议

基于对现有超低能耗建筑激励政策的初步分析，我们提出两点政策建议：

首先，明确奖补标准，按照当地经济发展水平和房地产价格制定合理的奖补标准。目前，全国各地对于超低能耗建筑的奖补标准尚不统一，并且不完全与当地经济发展水平正相关。因此，各地方政府应该依据当地经济发展水平和房地产价格，制定切实可行的奖补标准，既不能急于求成，奖补标准虚高，超出当地财政负担水平，也不要使奖补标准过低，起不到推动超低能耗建筑发展的效果。

其次，在政策制定上“多管齐下”，综合使用多种政策工具，明确政策执行部门。各地现有超低能耗建筑激励政策相对单一，在政策内容上，或单列一条财政补贴标准，或仅仅予以无明确奖补标准的宏观指导；在政策颁布的主体上，以发改委和财政部门为主，缺乏各部门的协同配合。在未来，各地政府应当综合使用多种政策工具，既采取财政补贴、税收优惠和金融信贷等经济支持，也兼顾优先评奖评优的精神奖励，并明确每项政策具体的执行部门，以取得最佳政策效果。

⁴ 例如：“开展超低能耗、近零能耗建筑及低碳建筑试点。统筹推进城镇既有居住建筑、市政基础设施和老旧小区节能改造，鼓励运用市场化模式实施公共建筑绿色化改造。”