



Note by EIC

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The value of green building... a new building trend that looks beyond just saving the planet



Highlight

- The green building trend in Thailand is still growing and likely to continue in the future. This trend is driven by the new Building Energy Code (BEC), which is expected to become enforced from 2019, and the higher return on investment when compared to traditional building.
- Because of the high return on investment, developers who plan to develop new office buildings should consider upgrading their projects to the green building standards. In general, the net present value (NPV) of a green office is higher than a traditional office by approx. 50% and the discount payback Period (DPP) is higher by approx. 10%.
- Nevertheless, EIC evaluates that there are two main challenges to developing the green building in Thailand which are 1) The lack of consultants who specialize in developing green building and 2) The cost & benefit of other alternatives to apply for FAR bonus.

The green building development trend in Thailand continues to grow despite higher costs of 20%¹ on average when compared to traditional building. In the past 5 years (2012-2017) the number of buildings designed to be environmentally friendly through effective use of natural resources, also known as green buildings, that passed international standards of Leadership in Energy and Environmental Design (LEED) of the U.S. Green Building Council (USGBC) and Thai's Rating of Energy and Environmental Sustainability (TREES) of Thai Green Building Institute (TGBI) have grown from 55 in 2012 to 240 in 2017. This figure represents more than 3 times increase in which 80% of these green buildings are office buildings (40%) and retail establishments (40%). Main factors driving developers to develop new green buildings, as opposed to traditional buildings, are rents that are 20-25% higher, Floor Area Ratio (FAR) that are 5-20% higher than the specified FAR in the town planning act, and the reduced electricity and water costs that are 20-30% lower.

Nevertheless, developing green building also requires building materials that are of higher quality, as well as energy management equipment which are more expensive. These requirements increase the costs of developing green building by about 20%¹ on average which represents the main obstacle to developing such a project in Thailand.

Hard costs, especially on building materials and equipment, are the main reasons why

development of green building is more expensive than traditional building Greening costs or costs associated with developing green building consist of 2 main components. They are 1) hard costs which represent 90% of the total increase in costs. Money from the increase in investment is used to acquire building materials and equipment with properties that reduce energy usages to comply with the LEED and TREES standards. For example, evaluation of the whole building energy under Energy & Atmosphere category requires energy usages that is lower than the minimum standard threshold. Therefore, developers must use building materials that reduce energy usages such as Low-emissivity (Low-e) glass that reduces heat entering the building by over 20% when compared to the standard glass while also reduce electricity usages of the air conditioning system in the building. However, the price of Low-e glass is also twice from standard glass.

The remaining 10% of the greening costs are 2) soft costs. They include professional fees for consultants who specialise in green building which is 3 times higher than a general consultant and cost of the paperwork for building standards evaluation that amounts approx. THB 1-2 million per building.

The new Building Energy Code (BEC) enforcement will increase developing costs of traditional building by 5%, representing an opportunity for developers to reach green building standard. The requirement in the new BEC indicating that building² with construction and renovation areas larger than 10,000 sq.m. (in 2019), 5,000 sq.m. (in 2020), and 2,000 sq.m. (from 2021) must pass energy saving evaluation. Such a process is expected to rise the project development costs by at least 5%. For this enforcement, EIC views that developers should consider upgrading their buildings to reach green building standards, LEED or TREES. Although this upgrade will face an even more stringent evaluation than BEC that represent additional costs of 15% from BEC's standard building, the upgrade will provides an opportunity for developers to receive a higher return on investment.

Higher return on investment when compared to a traditional building and positive response from lessees are important drivers of green building development in Thailand. This is an EIC analysis based on a comparison on return on investment between developing a traditional grade A office building and a Gold level green office building with 50,000 square metres of rental space in Central Business District (CBD) area. EIC found that despite the higher development costs of 20%, developers will receive higher returns through other benefits, including 15% higher FAR and 25% higher rental rates when compared to traditional building. Consequently, development of green building is likely lead to higher return. This's reflected in the NPV and the Discounted Payback Period (DPP) of green building which is 50% higher and 10% quicker than traditional building respectively.

Nevertheless, the lack of green building consultants and other alternatives in applying for FAR bonus are important challenges to the development of the green building in Thailand EIC finds that the number of consultants in Thailand, who specializes in the green building development, are likely scant. This is reflected by the ratio of number of consultants who certified LEED Accredited Professional (LEED AP) from USGBC to the number of green buildings that are certified by LEED standards. In Thailand, the said ratio is at 0.85 times (85 consultants per 100 green buildings)

from USGBC, also known as LEED Accredited Professionals (LEED AP), to the number of green buildings that are

certified by LEED standards. In Thailand, the said ratio is at 0.85 (85 advisors per 100 green buildings) which is lower than the world's average of 1.43 and lower than Asian countries including Singapore, Japan, and the Philippines at 2.24, 1.73, and 1.67 respectively.

In addition, the choices of applying for FAR bonus, according to Ministerial Regulation on Bangkok Comprehensive Plan B.E. 2556, specified other ways of receiving FAR bonus other than developing the green building. These include providing space for limited income residents, development of public space, allocation of public parking space in areas near mass transit systems³, and zoning of space to receive rainwater within the area. Each of these methods has different advantages and disadvantages, making it possible that some developers will opt for FAR bonus through methods more suitable to the project's characteristics and environment, as opposed to developing the green building.

¹ Information from a survey with real estate developers, consultants, and contractors in Green Building Market Report: South East Asia by BCI Economics

² The 9 types of building include hotels, offices, hospitals, department stores, theatres, gas stations, meeting convention halls, campus (school) and condominiums

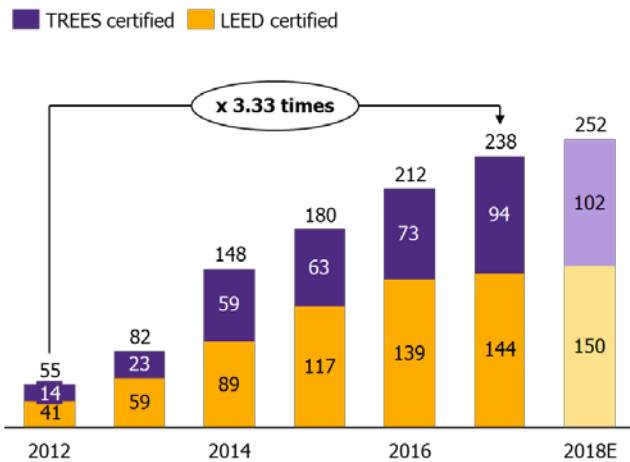
³ Public parking space must be located within 500 metres of mass transit systems and limited to the following stations: Thailand Cultural Centre, On Nut, Lat Krabang, Hua Mak, Bang Bamru, Taling Chan, Udomsuk, and Bearing.

Implication

- **Office developers shouldn't overlook to upgrade their projects to green building. Despite higher costs, there's potential reward in a higher return.** Higher rental rates for office spaces and higher FAR bonus represent such a return. Based on EIC analysis, the rate of return is likely to be higher than greening costs. This's reflected in project NPV and DPP of green building which is 50% higher and 10% quicker than traditional building respectively.
- **Green building's related business, especially consultants and contractors, must prepare themselves by developing knowledge and skill sets.** Currently, the ratio of number of consultants that specialise in green building per the number of green building in Thailand remains limited when compared to the rest of the world. Meanwhile, there're also only 1-2 contractors with experience in developing the green building, especially large office projects. Based on the popularity of the green building trend which is expected to grow, related businesses should prepare themselves and develop expertise on green building for the future, such as supporting their employees to enrol in training and to take the examination for LEED-AP.
- **The government should consider introducing new incentives to support the building as well as retrofitting old buildings to green building.** Other than the FAR bonus that developers can receive from the Department of City Planning, the state should consider to provide other incentives to encourage developers to develop the green building. For example, In the U.S., the government also provides income tax incentive and property tax deduction in addition to the FAR bonus. Furthermore, the state should develop supportive measures in retrofitting old buildings into green to promote energy savings.

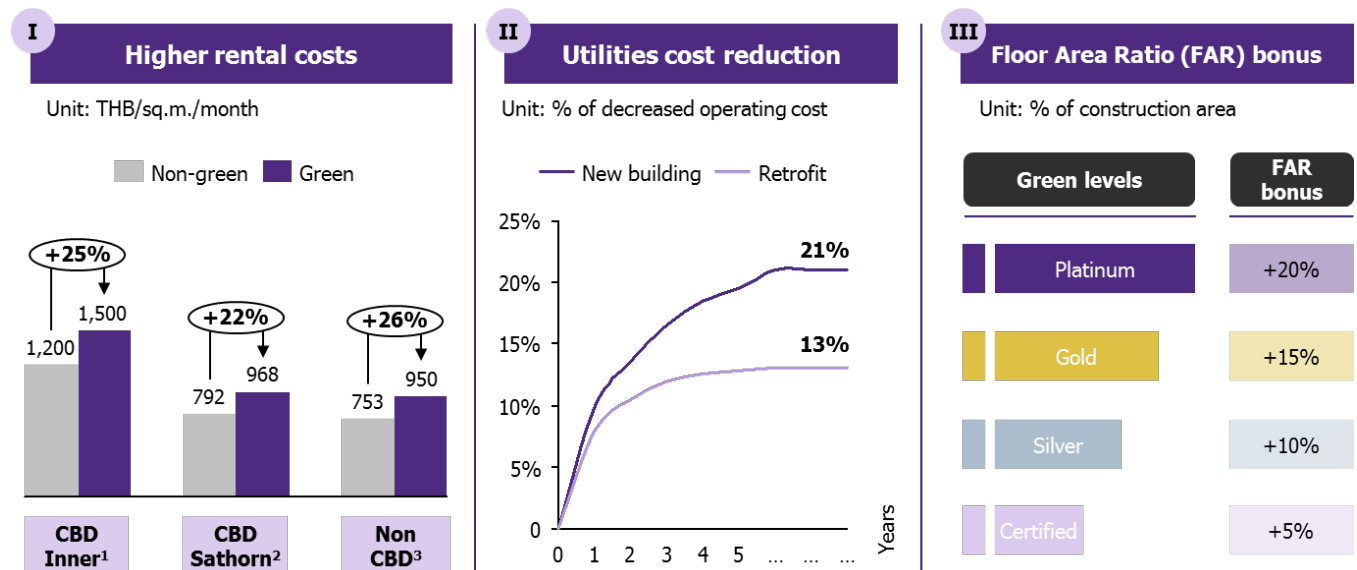
Figure 1: The number of green building in Thailand has risen above 3 times in the past 5 years (2012-2017)

Unit: Number of building



Source: EIC analysis based on data from USGBC and TGBI

Figure 2: Benefits that developers will receive from developing the green building in Thailand

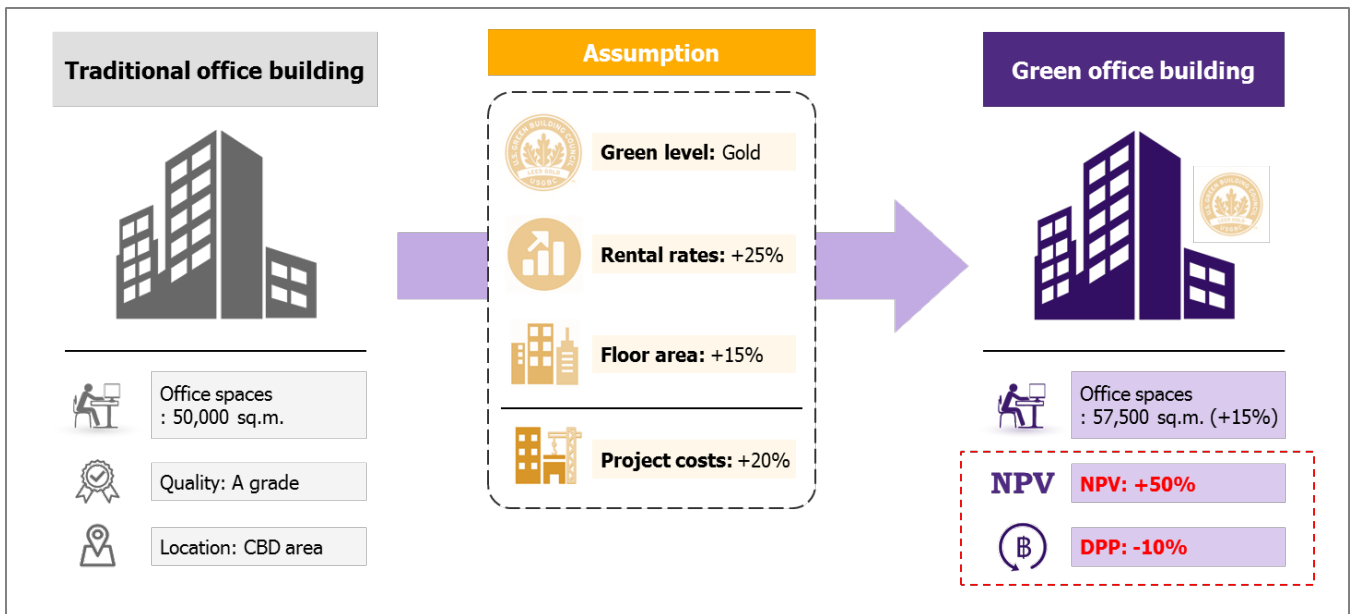


Note: 1. CBD Inner features Park venture and Gaysorn tower for green office buildings. Exchange Tower, Mercury Tower, Athenee Tower, and Interchange 21 are considered as traditional office buildings | 2. CBD Sathorn includes AIA Sathorn Tower and Sathorn Square as green office buildings. Bangkok City Tower, Sathorn City Tower and Sathorn Thani I,II are considered as traditional office buildings | 3. Non-CBD features AIA Capital Center and G tower green office buildings. The 9th Tower Grand Rama 9, Muangthai Phatra and CW Tower are considered as traditional office buildings | 4. Calculated based on energy spendings, such as electricity and water, before and after converting to green buildings

Source: EIC analysis based on data from CBRE, McGraw Hill Construction World Green Building Trends, and TEAM Group

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Figure 3: FAR bonus and higher office rents resulted in NPV and DPP of a green building that is higher and faster of a traditional office building by 50% and 10% respectively.



Note: Rent for office building according to BEC standards and green building are set as THB 1,200 and THB 1,500/square metres/month and construction costs are set at THB 29,700/square metres and THB 35,650/square metres respectively. The age of projects is fixed at 34 years (4 years for construction period and 30 years for rent).

Source: EIC analysis

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