Leading the Way to a Greener Tomorrow

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When the UAE Vision was announced stating that the country wants to be "among the best countries in the world by 2021", green economy and energy consciousness were part of the plan. His Highness Sheikh Khalifa bin Zayed Al Nahyan, UAE President, and His Highness Sheikh Mohamed bin Rashid Al Maktoum, UAE Vice President and Prime Minister and Ruler of Dubai, have led the nation's commitment to play its part in sustaining the environment, reducing the UAE's ecological footprint, and pioneering a green revolution with multiple laws and initiatives that would drive the progress of an effective green economy. As defined by the United Nations Environment Programme (UNEP), a green economy is one that results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities." It is expected to be "low carbon, resource efficient and socially inclusive."

Dubai exemplifies this determination to take the lead in the region with initiatives like the Dubai Integrated Energy Strategy 2030 which promotes clean energy and seeks to significantly reduce buildings energy consumption in Dubai, the World Green Economy Summit that led to the Dubai Declaration to develop the city as the green economy capital of the world, and Etihad ESCO which is a DEWA venture whose mission is to "make the Dubai built environment a leading example of energy efficiency for the region and the world". Such pro-active government initiatives to confidently drive the market is the only way to create a long term sustainable green revolution.

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Buildings constitute a major energy consumer in any developing city like Dubai, which makes it a no wonder that a lot of those initiatives focus on reducing buildings energy usage and improving the indoor built environment. Multiple factors contribute to the amount of energy a building consumes. A lot of times, a building's excess consumption of energy is attributed to inefficient designs or construction methods. Architectural design, building envelope, electromechanical systems, quality of installations, and systems commissioning all influence and drive the energy usage. Similarly, the way an existing building is being operated by facility managers and buildings occupants is another major factor of how energy is being consumed in a building.

Lack of expertise, lack of innovation, general systems oversizing, and out-of-date practices all constitute hurdles in producing new buildings that are energy efficient. While the "greening" efforts have managed to tighten the control over the new construction sector with stringent regulations and better industry awareness, the major obstacle remains to be the existing buildings sector.

Energy bills are frequently taken for granted, just like rent, despite the easiness of assessing how efficient a building is consuming energy. A simple indicator for measuring a building's energy performance is the Energy Use Intensity (EUI), which calculates the annual energy usage per unit area (kWh/m²/year). It can be simply derived and calculated from the electricity bills and the area of the building. A high EUI, when compared to a benchmark, means that there is room for improvement and that return-on-investment could be very attractive; this is when a building energy audit should be sought.

An energy audit is an energy conservation study in which opportunities of energy reduction and carbon footprint optimization are identified in an existing building through an inspection and analysis of a building's systems that are driving the energy usage. A number of energy efficiency measures are reported along with their financial feasibility and simple pay back calculations. If implemented, those measures would drive the energy usage down resulting in favorable reductions in the energy bills.

In many cases, a building's owner is not responsible for paying the bills and these are normally borne by tenants. Also, in the majority of the cases, budgets are nonexistent for retrofits and improvements placing yet more hurdles in the way of creating a sustainable existing buildings sector. The emerging energy services contractors (ESCO) may be a promising solution to that where retrofit capitals are paid by the ESCO who in return take their pay through a percentage of the savings. While this model still faces hurdles to cover financing and reach contract terms acceptance with buildings owners, awareness is being spread via industry professionals and governmental initiatives like Etihad ESCO making it a promising approach.

A true transformation in energy structure will only be achievable through the contribution of the private sector. Thus, social inclusiveness is key to achieving sustainable development and green economies. ■

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