

Can Morocco achieve net zero energy building?

More than 21% of energy saving can be achieved, 28% in heating load and 40% in cooling. The present study aims to assess the possibility of achieving net zero energy building in the Moroccan housing stock by combining architectural energy efficiency practices and renewable energies for hot water and electricity productions.

What are Morocco's energy policy initiatives?

Beyond the advancement of renewable energy, Morocco's policy initiatives encompass energy efficiency measures in challenging-to-abate sectors, such as building insulation and the adoption of energy-saving light bulbs. The overarching objective is to achieve a 20% reduction in overall energy consumption by 2030.

How can building envelopes reduce energy consumption in Morocco?

Improving the building envelope makes a significant contribution to reducing energy consumption. Indeed, more than 21% of energy saving, 28% of heating saving and 40% of cooling saving are possible to be achieved in all Moroccan climatic zones. Agadir and Tangier are the cities with the lowest thermal demands.

How will Morocco achieve a 20% reduction in energy consumption by 2030?

The overarching objective is to achieve a 20% reduction in overall energy consumption by 2030. Additionally, Morocco has taken modest steps to encourage the adoption of electric vehicles, exemplified by the installation of the initial charging stations along the highway connecting Tangier and Agadir.

Does Morocco's ambitious solar energy plan face challenges?

Source: International Energy Agency (IEA) . Morocco's ambitious initiative to diversify its electricity generation through a substantial expansion of solar power technologies, including PV panels and CSP, may face challenges due to the anticipated rise in dust and sandstorms in the region.

Are Moroccan solar PV systems subject to increased temperatures?

Moroccan solar PV systems subjected to elevated temperatures under various climate scenarios from 2021 to 2100. Source: International Energy Agency (IEA) . Moroccan wind power plants subject to increased temperatures under various climate scenarios from 2021 to 2100. Source: International Energy Agency (IEA) .

net-zero energy building in Morocco N. Abdou a, \*\*, Y. EL Mghouchi a, \*, S. Hamdaoui b, N. EL Asri c, M. Mouqallid a ... achieve zero energy building throughout all Moroccan housing stock. More than 21% of energy saving can be achieved, 28% in heating load and 40% in cooling. Moreover, 45% of building energy load can be covered

In pursuit of our aim to achieve carbon neutrality in urban areas, the concept of the Zero Energy Building (ZEB) focuses on the potential of buildings to cover as much energy as they consume annually through on-site

renewables. ... The major urban building archetypes in Morocco based on the latest census of 2014 [33] are as follow: Villa (4.5 % ...

But these are fair questions, nonetheless. Compartmentalizing different markets and sectors like, say, buildings and energy, all in the name of achieving net-zero something in one while further shrinking the stratosphere with the other, is just robbing Peter to pay Paul. "The building industry certainly needs to step up," Colker says.

Net zero energy buildings (NZEBS) are the future direction of architectures as well as the guideline to counter-act with energy issues. In this study, we proposed a new concept of "double zero" for building envelope, in which the "first zero" means zero heat gain/heat loss through building envelopes and the "second zero" means net zero energy consumption to fulfill ...

The building sector in Morocco represents about 25% of the country's total energy consumption, including 18% for the residential sector and 7% for the service sector. The integration of renewable energies in the building sector is the subject of a major trend in terms of future projects in Morocco.

The building under study is an office building situated in Casablanca, Morocco, covering a significant gross floor area of 11,804.05 square meters. ... Moussaoui, M.A., Mezrhah, A.: Towards Rural Net-Zero Energy Buildings Through Integration of Photovoltaic Systems Within Bio-Based Earth Houses: Case study in Eastern Morocco (2023) Google ...

The difference with net zero or commonly known as NZEB (net-zero energy building) is that it aims to produce the energy the building needs from renewable energy, such as PV. 5. Conclusion and perspectives Today, the construction sector offers in Africa and more particularly in Morocco a real potential for development.

DOI: 10.1016/J.BUILDENV.2021.108141 Corpus ID: 237658593; Multi-objective optimization of passive energy efficiency measures for net-zero energy building in Morocco @article{Abdou2021MultiobjectiveOO, title={Multi-objective optimization of passive energy efficiency measures for net-zero energy building in Morocco}, author={N. Abdou and Youness ...

Dubai, 6 December 2023 -- The Governments of France and Morocco, together with the UN Environment Programme (UNEP), launched the Buildings Breakthrough today at COP28, which will see countries joining forces to accelerate the transformation of the sector - which accounts for 21 per cent of global greenhouse gas emissions - with a view to making near-zero emissions ...

Semantic Scholar extracted view of "The Net Zero Energy Building Definition Framework: An Overview Pathway to Enhancing Sustainable Development and Mitigating Climate Change in ...

This chapter reviews the net zero energy buildings (nZEB) definition, design, modeling, controlling, and

optimization. Occupancies energy conservation behavior and their awareness and engagement are essentials for achieving the nZEC. The chapter presents the net zero energy community (nZEC) as an extension for applying the nZEB concept.

International Conference of net zero energy commercial buildings scheduled on March 02-03, 2024 at Casablanca, Morocco is for the researchers, scientists, scholars, engineers, academic, scientific and university practitioners to present research activities that might want to attend events, meetings, seminars, congresses, workshops, summit, and symposiums.

This forward-looking perspective article presents a status overview of solar photovoltaic-thermal (PVT) panels in net-zero energy buildings from various points of view and tries to picture the future of the technology in this framework. The article discusses the pros and cons of PVTs' state of practice, design developments, and integration possibilities. ...

Towards rural net-zero energy buildings through integration of photovoltaic systems within bio-based earth houses: Case study in Eastern Morocco July 2023 Solar Energy 259(3):15-29

In this context, the building sector is currently a relevant energy-intensive economic sector in Morocco; it accounts for 33% of the country's total energy demand (as the sector with the second ...

Welcome to International Conference of Net Zero Energy Commercial Building &quot;Building a Greener Tomorrow: Uniting Minds at the International Conference of Sustainable Construction&quot; International Conference of net zero energy commercial buildings November 14th-15th, 2024 Casablanca| Morocco About NZECB 2024 : A net zero-energy building (NZEB) is a residential ...

The rapid advancement of the building sector in the last decade has led to a significant increase in energy usage, accounting for about 40% of the world's total energy consumption. With about 80% of this energy derived from fossil fuels, the resulting greenhouse gas emissions contribute to global warming. The zero energy buildings (ZEB) concept offers a ...

The term net zero refers to the balance between the amount of produced greenhouse gas and the amount removed from the atmosphere. The term Net Zero Energy Building (NZEB) are characterized as zero net energy consumption buildings i.e. the total sum of energy used annually by the buildings is approximately equal to the total sum of the renewable ...

Multi-objective optimization of passive energy efficiency measures for net-zero energy building in Morocco. N. Abdou Y. E. Mghouchi S. Hamdaoui N. E. Asri M. Mouqallid. Environmental Science, Engineering. 2021; 81. Save. Multi-Objective Optimization of Building Life Cycle Performance. A Housing Renovation Case Study in Northern Europe

Global energy consumption has led to concerns about potential supply problems, energy consumption and

growing environmental impacts. This paper comprehensively provides a detailed assessment of current studies on the subject of building integrated photovoltaic (BIPV) technology in net-zero energy buildings (NZEBS). The review is validated through various case ...

Globally, the building sector constitutes one of the three major carbon-emitting sectors (along with transportation 1 and industry 2). Among those three, buildings have the highest energy demand share (approximately 35%). 3 Although building energy activity declined (over 3%) in 2020 during the COVID-19 pandemic, 2021 ushered in a rebound as building activity in ...

The Zero Energy Building (ZEB) paradigm revolves around the notion that structures can produce an equivalent amount of energy to their annual consumption through the deployment of on-site renewable resources. ... Empirical validation and analysis of the energy performance of an ecological net zero energy building (NZEB) in Benguerir-Morocco ...

What is Zero Energy Building? Difference between Green Building and Zero Energy Buildings Sustainable, Eco and Green buildings try to use maximum benefit of the natural resources and consumes less energy than our current traditional house, while zero energy building concept is 100% use of natural resources and zero energy consumption.

The present study focuses on the optimizing of passive energy efficiency measures and the dimensioning of renewable energy systems to improve the energy performance and achieve net zero-energy building. A set of building envelope parameters have been considered including window-to-wall ratio, air change rate, transmission coefficient of the external surfaces and ...

The topic of zero energy buildings (ZEBs) has received increasing attention in recent years, until becoming part of the energy policy in several countries. In the recast of the EU Directive on Energy Performance of Buildings (EPBD) it is specified that by the end of 2020 all new buildings shall be "nearly zero energy buildings" [1].

The methodology and the cost-effectiveness potential for optimizing the design of net-zero energy building in a cold climate region in Lebanon; Cedars, and the non-sorting genetic algorithm (NSGA-II) is chosen in order to minimize thermal, electrical demands and life cycle cost while reaching the net zero energy balance. Expand

In this paper, an optimization-based analysis approach is presented to cost-effectively improve the energy efficiency of residential buildings in Morocco. This study introduces a unique focus on the Moroccan context, where a comprehensive application of energy efficiency optimization has not yet been undertaken. This analysis considers the interactive effects ...

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