Advancing Renewable Energy in Buildings

Overcoming Challenges Through Policy and Innovation

Juracy Américo de Oliveira Filho

2024-09-04

Agenda

1) Introduction

2) Agenda
3) Overview of the Energy Landscape
4) Challenges in the Building Sector
5) Potential Solutions: Policy and Innovation
6) Evaluation and Conclusion

To begin, let's take a look at the agenda for today's presentation. **First**, I will be giving a brief overview of the current energy landscape and the challenges we face in the building sector. **Then**, we'll move into a discussion of the major roadblocks hindering the widespread adoption of renewable energy technologies in our buildings. **Having established this foundation**, I'll be outlining some potential solutions, focusing on the crucial role of policy and innovation. **Finally**, I will evaluate these solutions and offer some concluding thoughts.

-

Energy Landscape

- Growing Global Energy Demand
- Climate Change and Energy Consumption
- Building Sector's Impact:
  - Significant energy consumption
  - High greenhouse gas emissions
- Importance of Renewable Energy

Note Solar Classes - (*Through the Looking Glass*, 2024) Copyright © 2024

Let's start by considering the bigger picture. As we all know, the global demand for energy is constantly growing. Couple this with the urgent need to address climate change and it becomes clear that we need to rethink our approach to energy consumption, especially in the building sector.

Why the building sector, you might ask? The reason is that buildings account for a substantial portion of global energy consumption and greenhouse gas emissions. This is where renewable energy sources come in, offering a viable pathway to reduce the carbon footprint of buildings and create a more sustainable future.

-

Challenges in Renewable Energy Adoption

- High Upfront Costs
- Technological Limitation
- Lack of Public Awareness
- Policy and Regulatory Inconsistencies

Note. Energy consumption trends over the past decade in developed and developing countries. (Environment Program, 2020)

Now, let's shift our attention to the heart of the matter: the challenges we need to overcome. Despite the promise of renewable energy, its widespread adoption in buildings faces several obstacles. **These barriers include**:

- **High upfront costs:** The initial investment required for renewable energy systems can be a deterrent for many building owners.
- **Technological limitations**: While promising, some technologies are still under development and may not yet be efficient or cost-effective for all types of buildings.
- **Lack of public awareness:** Many people are simply not aware of the benefits of renewable energy or the options available to them.
- **Policy and regulatory inconsistencies**: A lack of clear, consistent policies and regulations can create uncertainty for investors and hinder the growth of the renewable energy market in the building sector.

With these challenges in mind, let's explore some potential solutions.

-

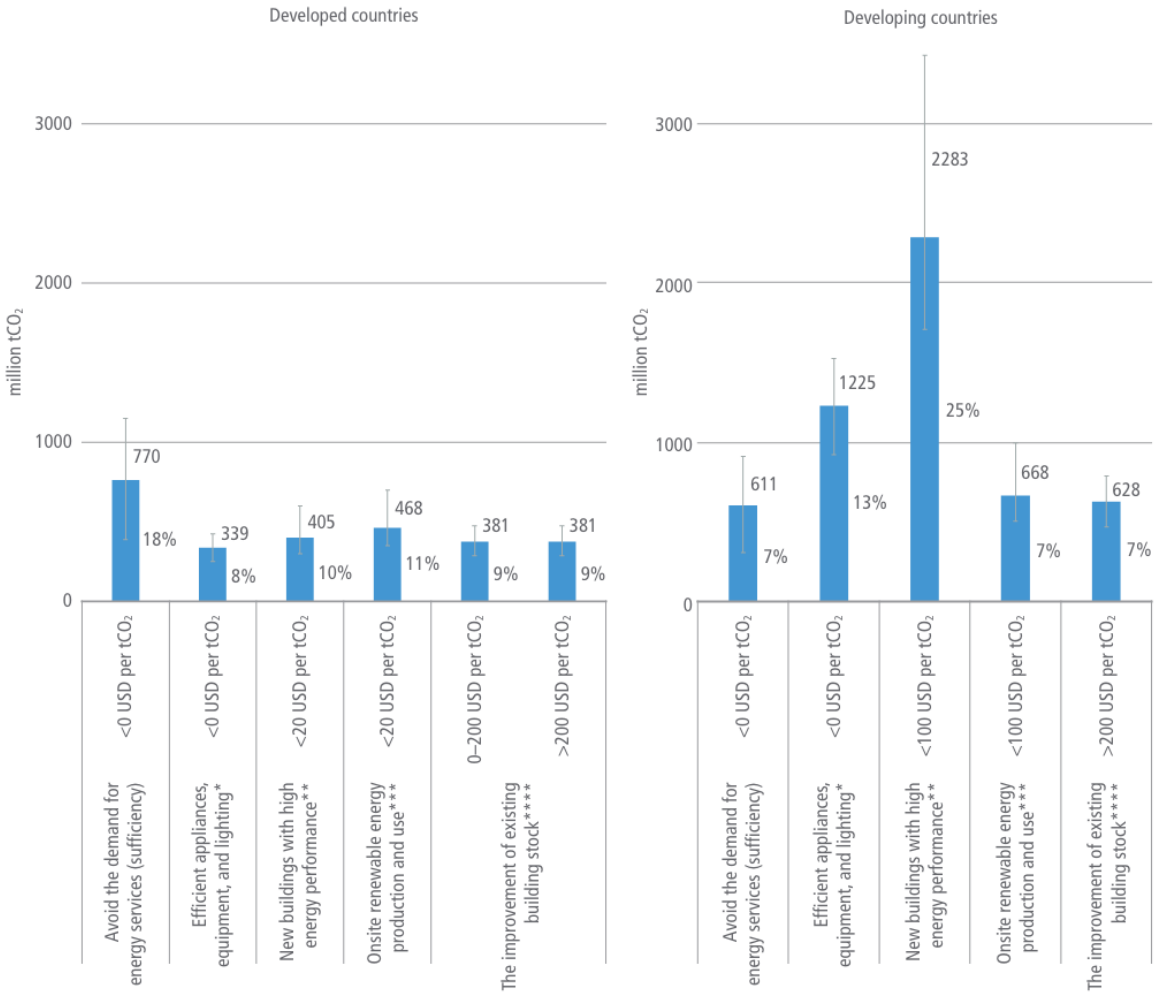

Figure 1: GHG Emission

Solutions – Policy Approaches

- Role of Government Policy
  - Supportive policies needed
- Key Policy Measures
  - Building energy codes
  - Financial incentives (tax credits, grants, subsidies)
  - Capacity development and training programs

Figure 2: Photovoltaic Roof

Note. The building integrated a photovoltaic roof. (IKC, 2016).

First, let's talk about the role of government policy.

- Governments can play a significant role in promoting renewable energy use in buildings by implementing supportive policies.
- This could include: