Climate Change Mitigation Strategies

# 1. Introduction

Climate change mitigation encompasses actions to limit the magnitude and rate of long-term climate change. This document outlines evidence-based strategies for reducing greenhouse gas emissions and enhancing carbon sinks.

# 2. Mitigation Strategy Matrix

Table 1: Priority Mitigation Actions by Sector

|  |  |  |  |
| --- | --- | --- | --- |
| Sector | Strategy | Potential (GtCO₂/yr) | Implementation Cost |
| Energy | Renewable transition | 12.5 | Medium |
| Transport | Electrification | 4.2 | High |
| Buildings | Efficiency improvements | 3.8 | Low |
| Agriculture | Sustainable practices | 5.1 | Low |

# 3. Renewable Energy Transition

Transitioning from fossil fuels to renewable energy sources represents the largest mitigation opportunity, with potential to reduce emissions by 12+ gigatons annually.

## Key Technologies:

* Solar photovoltaic systems
* Wind energy (onshore and offshore)
* Hydroelectric power
* Geothermal energy
* Green hydrogen production

# 4. Global Renewable Capacity Growth

[IMAGE: Chart showing renewable energy capacity 2000-2023]

Note: Renewable energy capacity has grown exponentially, with solar and wind leading the expansion.

# 5. Carbon Sequestration Methods

Beyond emissions reduction, removing CO₂ from the atmosphere through natural and technological means is essential for achieving net-zero targets.

1. Afforestation and reforestation programs
2. Soil carbon enhancement through regenerative agriculture
3. Direct air capture (DAC) technologies
4. Ocean-based sequestration (blue carbon)

# 6. Conclusion

Achieving the 1.5°C target requires rapid deployment of mitigation strategies across all economic sectors. The combination of renewable energy expansion, energy efficiency, and carbon sequestration can limit warming while supporting sustainable development goals.