

# TechnoX: Revolutionizing Energy Consumption

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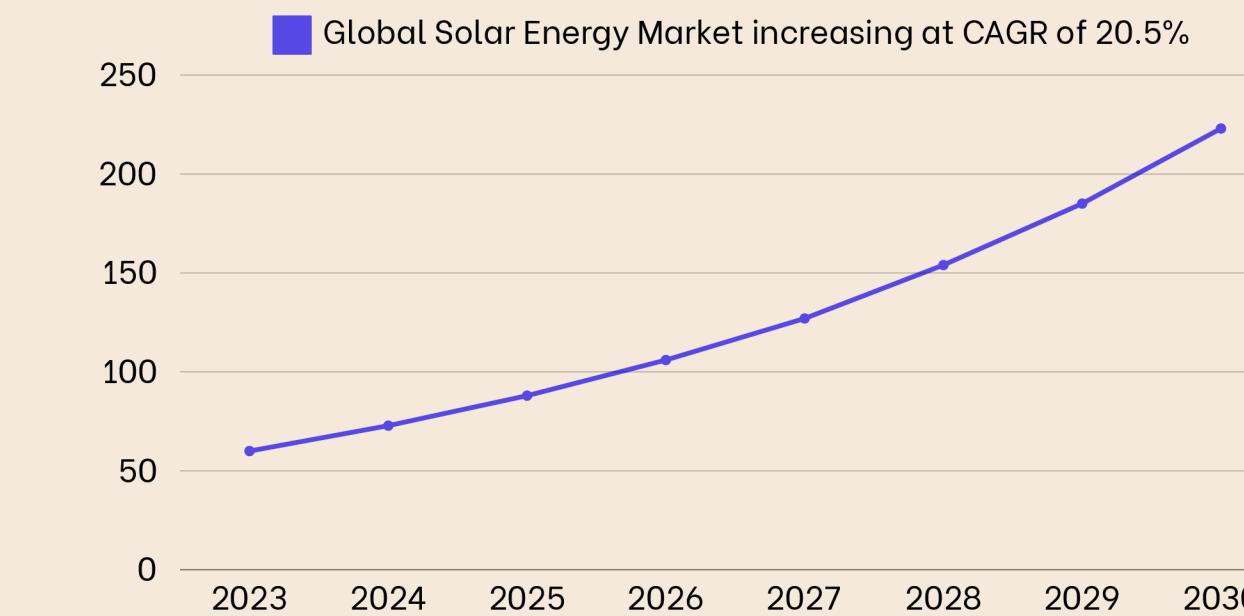
## Overview:

- TechnoX is developing a state-of-the-art platform designed to optimize energy consumption for households and businesses using solar panels.
- Focused on dynamic electricity pricing, the platform leverages Time-of-Day (ToD) and Time-of-Use (ToU) tariffs to maximize savings.

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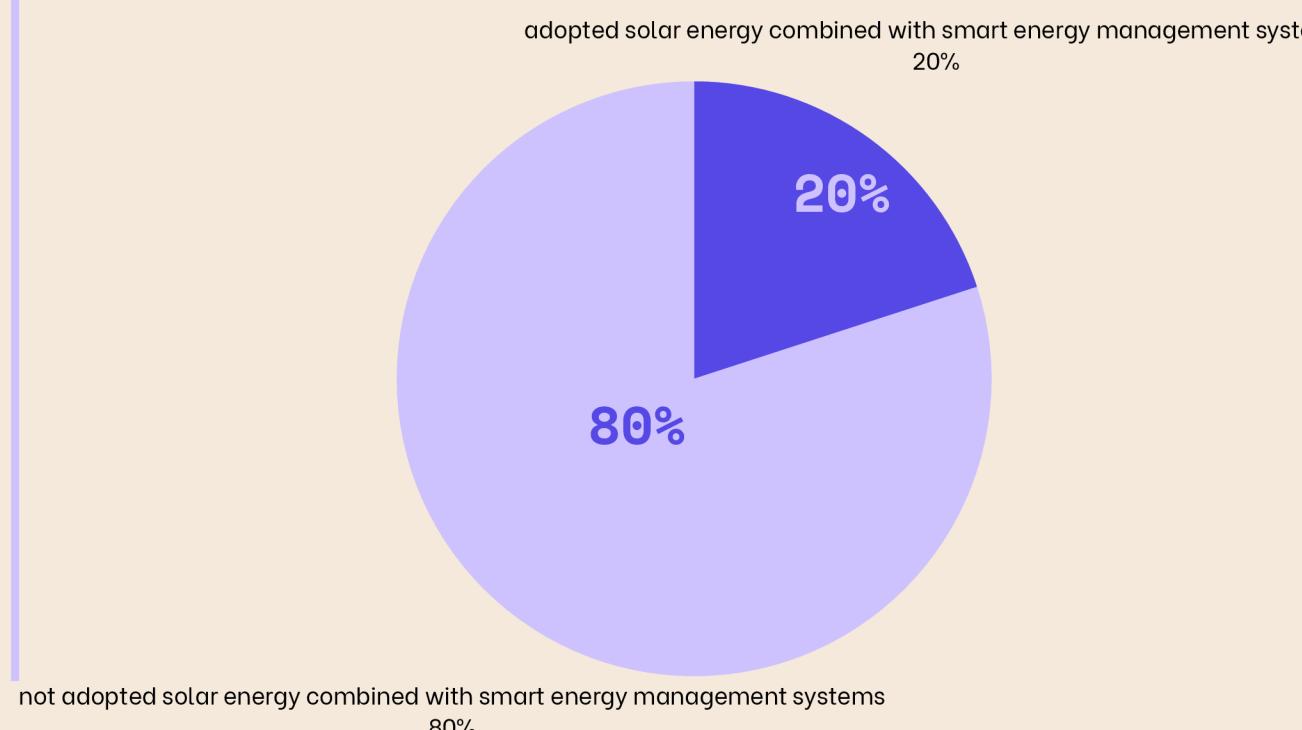
## Objective:

- Enable users to shift energy usage to cheaper periods and utilize stored solar energy during peak pricing times.



**Global Solar Energy Market:** Valued at \$223 billion in 2023, expected to grow at a CAGR of 20.5% from 2023 to 2030.

**Potential User Adoption:** By 2028, 1 in 5 households in developed markets like the U.S. and Europe will adopt solar energy combined with smart energy management systems.



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## Solution Overview:

- A platform that empowers households and businesses to optimise energy usage through real-time tariff data and efficient solar energy management.

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## Key Features:

- Real-Time Tariff Monitoring: Provides up-to-the-minute pricing data.
- Energy Analytics: Delivers actionable insights for optimising usage.
- Smart Scheduling: Automated scheduling for cost-effective energy consumption.
- Solar Energy Management: Enhances use of stored solar energy during peak tariffs.
- Forecasting & Alerts: Predictive AI insights and user alerts for efficient decision-making.

# Technical Implementation & Benefits

## Innovative Energy Management Solutions

- **Smart Scheduling:** Automate high-energy appliance operation during low-tariff periods.
- **Solar Energy Management:** Track solar production and manage battery storage effectively.
- **Forecasting and Recommendations:** Utilise machine learning for predictive analytics on energy consumption.
- **User Engagement:** Notifications about tariff changes and opportunities to sell excess energy.

## Technology Stack:

- **Frontend:** Web and mobile app interfaces (React, Angular).
- **Backend:** Cloud-based (AWS/Google Cloud), API integration with utility and smart home data.
- **Analytics:** AI-powered models (Python, TensorFlow) for forecasting and optimization.

## Benefits:

**A** **Cost Savings:** Households can reduce energy bills by 15-30% through smarter energy use.



**B** **Environmental Impact:** Increased solar energy usage can cut carbon emissions by 25-40% per user.



**C** **Revenue Opportunities:** Potential to sell excess energy back to the grid at profitable rates.

