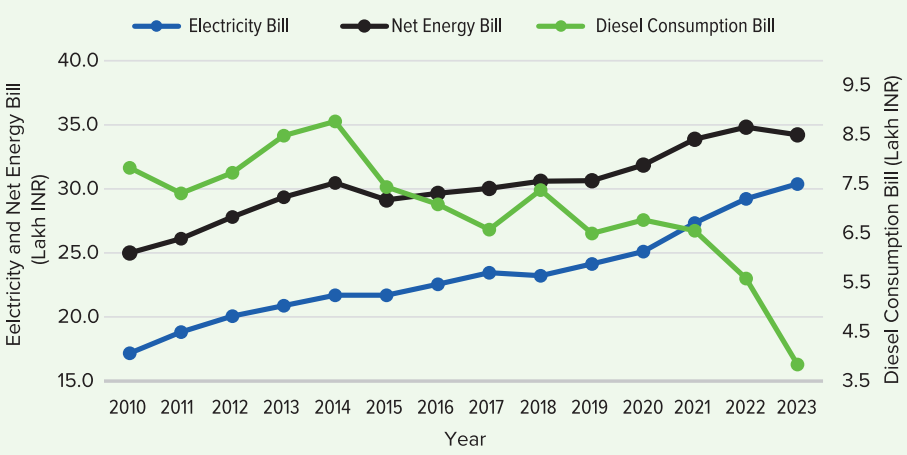
Alliance for an Energy Efficient Economy

SANKALP SHEETGRIH SASHAKTIKARAN AUR NAVINIKARAN KI PEHEL

BACKGROUND

India ranks second globally in fruit and vegetable production. However, the country faces challenges, such as about 18% food loss due to inadequate cold-chain infrastructure, lower exports, high price fluctuations, and low farmer income. The government realizes the importance of the cold chain and has instituted several programs to financially assist farmers and traders in strengthening the infrastructure. The current focus primarily revolves around developing new cold-chain facilities like packhouses, cold rooms, reefers, etc. Meanwhile, existing cold stores, pivotal to the cold-chain system, constructed majorly between post-independence and 2010, have aged and require modernisation in building structure, cooling systems, and refrigerants, among other aspects. Predominantly designed for single commodities, particularly potato storage, these cold stores are concentrated in Uttar Pradesh, West Bengal, Punjab, and Bihar, leading to poor capacity utilisation. As the cold stores are energy guzzlers, inefficient operation consumes high energy and contributes to direct and indirect greenhouse gas emissions. The average sanctioned load of these cold storages ranges between 150 to 200 kVA, with a national average of 167 kVA, indicating substantial energy requirements. In FY 2022-23, the average annual electricity bill of a typical 6000 Mt capacity cold store was INR 34.43 lakh, with a Diesel bill of INR 3.84 lakh, reflecting a 37% increase from 2010-11. This highlights the strain from inefficient operational energy use. Despite grid improvements and less reliance on diesel generators, aging systems have driven up net energy costs, compounded by DG use, escalating operational expenses and environmental impacts.



Uttar Pradesh, India's largest potato-producer, contributes 35% of the country's total production. The maximum number of cold stores are in the potato-belt districts of Agra (457), Firozabad (235), Etawah (129), Aligarh (120), Hathras (118) and Kannauj (112). In total, the state, has close to 2500 cold stores with a capacity of 15.1 Million MT (as on 2023)*, which is almost 40% of India's total cold store capacity, most of these facilities are technically outdated and exclusively designed for storing potatoes, thus, remaining idle for a significant period of the year. Over 6 lakh farmers in the state are engaged in potato cultivation. Potato farmers struggle with minimal returns due to the high costs of storing their produce in cold stores. Modernizing cold storage infrastructure is essential to lower expenses, enhance efficiency, mitigate environmental impacts, and promote sustainable agriculture.

* Loksabha Starred Question No.140

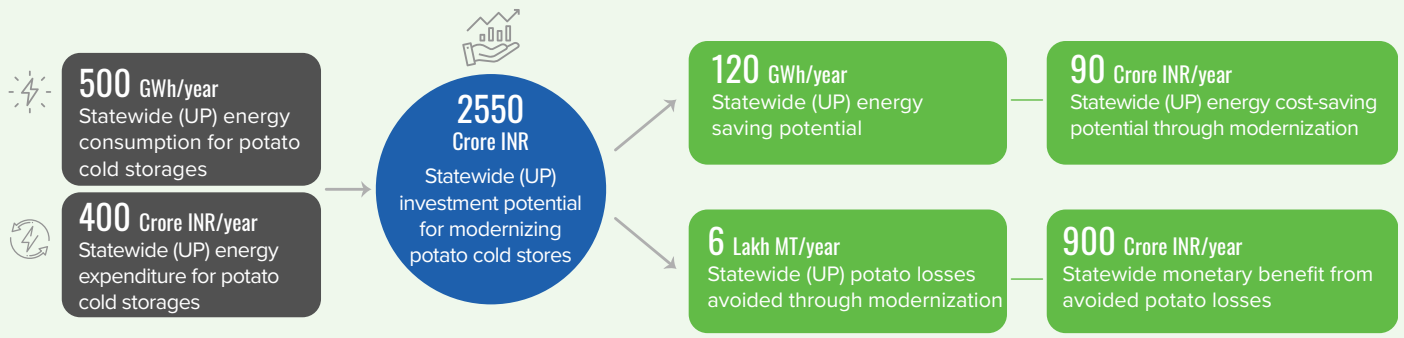
GOAL

To develop sustainable cold stores in Uttar Pradesh to reduce food loss, energy consumption, GHG emissions and improve farmers' livelihood

WHAT IS COLD STORAGE MODERNISATION?

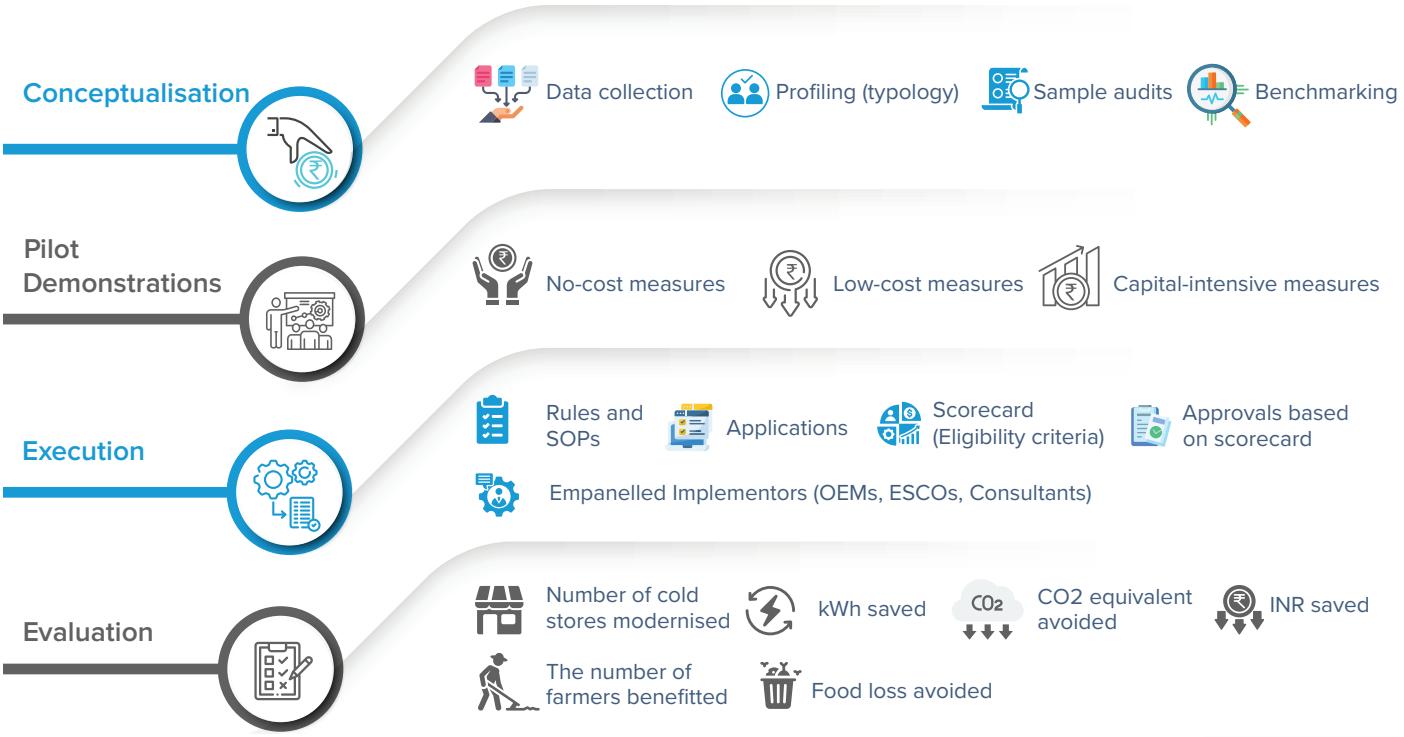
- Improving the thermal performance of the building envelope;
- Upgrading overall refrigeration system and optimizing its performance to match product load and seasonal variations;
- Integration of renewable energy sources

EXPECTED IMPACT OF MODERNISATION



SANKALP'S APPROACH

SANKALP aims to assess the existing cold stores, identify and prioritize the opportunities to integrate energy efficiency and renewable energy, and facilitate this implementation. The programmatic approach illustrated below focuses on bringing policy, market, finance, awareness, and capacity-building elements that will help scale up energy efficiency in conventional cold storage.



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