



GOVERNMENT OF PAKISTAN
MINISTRY OF SCIENCE & TECHNOLOGY
NATIONAL ENERGY EFFICIENCY & CONSERVATION AUTHORITY
NEECA BUILDING, G-5/2, ISLAMABAD, PAKISTAN
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NEECA's Energy Talks Series – 02

Topic	Energy Efficiency and Conservation in Agriculture Sector
Guest Speaker	1. Mr. Shoukat Ali Chadhar-President Pakistan Kisan Board 2. Mr. Raja Mansoor/ Progressive Landlord
Venue	Multipurpose Hall – NEECA Building
Date	19, May 2022





Policy Brief

Energy Efficiency in Agriculture Sector

Agriculture is an important sector of the economy which holds major share of country’s work force. The sector is suffering due to fluctuating energy prices, future energy security, and concerns on GHG emissions which present serious challenges for the sector. Agriculture sector is among the 05 strategic sectors for ensuring energy efficiency & conservations as per NEECA Act 2016. Awareness about energy standards of the agriculture machinery is deemed as necessary as the information about the modern agriculture methods is important. EE&C measures has not been a priority for Pakistan’s farmer community.

Tractor and tube well are two main agriculture equipment which are central part of input cost for crop production. Tube well with diesel engine are the major inputs expenses for farmers in riverine area. Mostly, the farmers purchase agricultural machinery from Zaria Tarqiati Bank on loan or they remain at the mercy of middleman. Practically, there is no awareness about the energy standards of agricultural machinery on field. If the energy standards for agricultural machinery are ensured, it will help to reduce the production cost which will ultimately add to profit margin for farming community.

According to the energy yearbook 2019-20, the agriculture sector has consumed 814,519 TOE (approximately 1.50% of total energy) of total energy (52 MTOE) by using both oil and electricity while the energy consumed by tractors is excluded. Table 1 shows total energy consumption by all sectors of the economy and the percentage of energy consumption in the agricultural sector.

Table 1: Total Energy Consumption and % use in Agriculture sector		
Source	Total Consumption in Pakistan	% Used in Agriculture Sector
Petroleum Products	19.22 MT	0.078
Natural Gas (Fertilizer - feed stock)	1,453 BCF	13.52
Natural Gas (Fertilizer - fuel)	1,453 BCF	2.56
Electricity	109,461 GWh	9.0

Source: Energy Year Book 2020

Overall, a new paradigm of agriculture and food production is needed to respond to the increasing competition for land and water, rising energy costs, and the subsequent price increases for inputs produced from fossil fuels and the anticipated impacts of climate change. Globally, processed agriculture products are becoming more valuable market goods rather than raw products due to innovation and demand for preserved foods. In contrast, most of the



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horticulture produce is consumed domestically, and its domestic demand is increasing with the growing population and rising disposable incomes in Pakistan. Environmental footprints and energy standards are important aspects for the growth and sustainability of agriculture.

At present, Pakistan's share of horticulture exports in the total global trade in horticulture commodities is 0.34%. It is estimated that in Pakistan 25% of fruits & vegetables produced each year are lost because of poor harvest conditions and its estimated local market value reaches somewhere near the US \$ 522 million. The losses due to lack of storage facilities alone reach 1.24 million metric tons, which values to nearly US \$ 239 million. Agriculture community can significantly reduce these losses by reducing the cost of energy used for storage through energy efficient design of cold storage houses.

Commercial activities associated with agriculture are totally ignored which consume significant amount of energy like fertilizer sector and cold storage houses. The efficient use of energy in the agriculture sector as well as in processing of agri-products is one of the key components of NEECA interventions. NEECA has developed Minimum Energy Performance Standards (MEPS) for electric motors/tube wells. NEECA is also working on fuel economy standards and will also soon launch a country-wide program for tractor tune-up centers. All these initiatives are part of NEECA's Strategic 2020-23 Plan and Draft National Energy Efficiency & Conservation Policy 2022. Energy Efficiency & Conservation initiatives have direct implications for savings in agriculture production input cost.

The role of Provincial Designated Agencies (PDAs) of NEECA and Provincial Agriculture Departments is very crucial to achieve EE&C targets in agriculture sector. NEECA's EE&C Strategy for agriculture sector focuses to reduce the input cost of agriculture as well as targets to support the farming community to ensure energy standards for dairy farming (buildings) and cold storage houses. At present, NEECA is focusing on following aspects for EE&C gains in agriculture sector;

- Tune-up center for Tractors having power greater than 66HP
- Training of trainer program on technical, energy-efficient, and cost-benefit analysis of; energy-saving improvements, electric-load management, and operational improvements that will save money and energy in the agricultural sector
- Replace maximum possible tube wells pumps with more efficient pumps/conservation structure
- Energy Efficiency in Dairy Farming
- Introducing the Concept of Energy Efficient Cold Storage Houses
