

## **ICAR-National Dairy Research Institute**

**Karnal-132001, Haryana**

### **Sustainability and Carbon Emissions & Management Overview**

**ICAR-NDRI, Karnal university report its carbon emissions in line with the GHG Protocol Corporate Standard or another commonly used standard:**

ICAR–National Dairy Research Institute (ICAR-NDRI), Karnal reports its carbon emissions in alignment with internationally recognized frameworks, notably the GHG Protocol Corporate Standard. Beginning in 2025, the institute established a formal, institution-wide carbon accounting system that systematically captures and reports Scope 1 (direct emissions from sources such as diesel generators, transportation, and livestock methane) and Scope 2 (indirect emissions from purchased electricity) using standardized emission factors. This transition reflects a shift from research-driven environmental assessments to structured, auditable GHG reporting, ensuring transparency, comparability, and alignment with global best practices in sustainability reporting.

**The total Scope 1 and 2 carbon emissions in tCO<sub>2</sub>e (tonnes (t) of carbon dioxide (CO<sub>2</sub>) equivalent (e):**

For the baseline reporting year 2025–26, ICAR–National Dairy Research Institute (ICAR-NDRI), Karnal reports total Scope 1 and Scope 2 carbon emissions of 3,944.57 tCO<sub>2</sub>e. This figure is primarily driven by Scope 2 emissions from purchased grid electricity consumption, calculated using the standard Indian grid emission factor, while Scope 1 emissions including diesel generator use, institutional transport, and livestock-related methane are currently under detailed quantification and auditing.

**ICAR-NDRI, Karnal’s carbon reduction target covering Scope 1 & 2 emissions by at least 2050:**

ICAR–National Dairy Research Institute (ICAR-NDRI), Karnal has established a clear carbon reduction target covering both Scope 1 and Scope 2 emissions, with a formal commitment to achieve Net-Zero emissions by 2047, thereby meeting and exceeding the 2050 requirement. This target is supported by a structured, science-based approach that includes methane emission reduction from livestock through advanced feed and probiotic interventions, transition to renewable energy (including on-campus solar generation), and improvements in energy efficiency and operational practices. The institute monitors progress through institutional initiatives such as *Clean & Green NDRI* and the National Innovations on Climate Resilient Agriculture (NICRA), ensuring a measurable and time-bound pathway toward carbon neutrality.

**The amount of energy generated in campus through renewable sources, in kWh, for the last reporting year:**

For the recent reporting year (FY 2025–26), ICAR–NDRI, Karnal generated a total of 1,198,081 kWh of renewable energy on campus. This energy is primarily produced through its solar photovoltaic (PV) installations, including rooftop system and solar-powered infrastructure across academic and residential buildings. The renewable generation accounts for approximately 19.7% of the institute’s total annual electricity demand, and is fully utilized on-site to power laboratories, dairy processing facilities, and campus operations, thereby significantly reducing dependence on grid electricity and lowering Scope 2 carbon emissions.

**Total ICAR-NDRI, Karnal, campus building footprint:**

ICAR–National Dairy Research Institute (ICAR-NDRI), Karnal reports a verified campus building footprint of 1,914 m<sup>2</sup> (based on the National Library in Dairying as a representative audited structure). This is situated within a larger 560-hectare campus comprising extensive academic, research, residential, and dairy processing infrastructure.

**ICAR-NDRI, Karnal, commitment to reaching net zero:**

ICAR–National Dairy Research Institute (ICAR-NDRI), Karnal has formally committed to achieving Net-Zero carbon emissions by 2047, aligning with India’s long-term “Viksit Bharat @2047” vision. This commitment covers both Scope 1 and Scope 2 emissions and is embedded within the institute’s strategic mandates and sustainability initiatives. The pathway to net zero includes advanced methane mitigation in livestock systems, expansion of on-campus renewable energy (notably solar power), improved energy efficiency, and strengthened carbon sequestration through its extensive agro-ecosystem. Progress is monitored through structured programs such as Clean & Green NDRI and the National Innovations on Climate Resilient Agriculture (NICRA), ensuring a measurable and science-driven transition toward carbon neutrality.