NAVOI STATE UNIVERSITY

Department of Ecology & Environmental Protection

Practical Technical Guidebook for Regional Industry Specialists

STANDARDIZED INDUSTRIAL ENVIRONMENTAL & ENERGY COMPLIANCE GUIDEBOOK

> **Target Users:** Environmental Specialists, Plant Engineers & Compliance Officers (Navoi Free Industrial Economic Zone - NFEZ, NMMC Subcontractors & Local Service Enterprises)
> **Issued By:** Navoi State University Technical Expert Advisory Group
> **Primary Objective:** To standardize industrial energy consumption tracking, streamline compliance reporting workflows, improve emission data accuracy, and align production processes with national sustainability goals.

1. Key Technical Modules & Regulatory Guidance

- **Energy Consumption Analytics:** Methodologies for calculating energy-related carbon emissions, compiling annual power balance sheets, and establishing continuous operational consumption baselines.
- **Peak Load Optimization:** Identification of high-demand peak usage windows and execution of load-shifting strategies to enhance plant efficiency and decrease overall power grid strain.
- **Regulatory Data Compliance:** Navigating national environmental protection legislation, applying standardized data collection protocols, and eliminating data reporting errors.

2. Standardized Regulation-Compliant Reporting Templates

The following standardized reporting templates are developed by NSU specialists to streamline industrial compliance workflows:

Template Code & Name	Description & Required Inputs	Key Output / Metric	Filing Cycle
NSU-ENV-01: Annual Energy Balance Sheet	Total active/reactive power intake, fuel usage, operational machinery hours, and auxiliary power loss.	Annual power balance & baseline EnPIs	Annual
NSU-ENV-02: GHG & Emission Calculator	Electricity consumption (kWh), fuel combustion volume, and specific grid emission conversion factors.	Direct & indirect Scope 1 / Scope 2 carbon footprint (tCO2e)	Quarterly
NSU-ENV-03: Peak Load & Load-Shifting Model	Hourly demand logs, high-power equipment schedules, and off-peak load transition proposals.	Peak demand reduction % & cost savings	Monthly
NSU-ENV-04: Compliance Audit Checklist	Verification of environmental permits, waste management logs, and equipment thermal inspection status.	Regulatory compliance score & action plan	Bi-Annual

3. Step-by-Step Implementation Workflow for Local Enterprises

Step 1: Baseline Data Logging — Enter daily electricity meter readings and equipment run-time logs into Template NSU-ENV-01.

Step 2: Emission Assessment — Utilize Template NSU-ENV-02 to automatically calculate energy-induced greenhouse gas emissions.

Step 3: Load Optimization — Analyze peak usage hours using Template NSU-ENV-03 and reschedule high-load operations to off-peak slots.

Step 4: Submission & Verification — Submit standardized compliance reports to regional environmental authorities and NSU advisory team for auditing.