



# **Application of Digital Tools for Promotion of Energy Efficiency and Renewable Energy in Nepal**

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Government of Nepal

# Overview

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1. AEPC Introduction

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2. Country Scenario

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3. Digital Solutions – 8 Tools

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4. Key Takeaways



Government of Nepal  
Ministry of Energy, Water Resources and Irrigation  
**Alternative Energy Promotion Centre**  
Making Renewable Energy and Energy Efficiency Mainstream Supply in Nepal

# Alternative Energy Promotion Centre (AEPC)



Under the purview of Ministry  
of Energy, Water Resource and  
Irrigation



**Focal Agency of Government of Nepal –**  
Promotion and Development of RETs, Energy  
Efficiency and Climate Change Initiatives



Accredited as Direct Access  
Entity to Green Climate Fund



**Energy Audit**



**Solar  
(Thermal & PV)**



**Renewable  
Energy and  
Energy  
Efficiency  
Initiatives**



**E-Cooking**



**Hydro  
(Micro, Mini, IWM)**



Bi- Methane Bottling Unit

**Biogas  
(HH and Institutional)**

Organic Fertilizer



**Wind**



**Biofuel**



**Solid Biomass  
(ICS ,Gasifiers,  
Briquettes)**

# Country Scenario : Energy Efficiency & Renewable Energy

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95% Electrification (87% National Grid, 7.5% Distributed RE)

Access to Improved Cooking - 1.5 million HHs (Biogas, ICS and Electric Cooking)



Annual Average Improvement of EE - 0.84% per year (2015)

Target - **Doubling** to 1.68% per year till 2030



# Digital Solutions

1. Advanced Metering Infrastructure – Smart Prepaid Meter

2. Cloud Based Utility Billing System in Mini Grid Systems

3. GIS Based Municipal Energy Planning Tool

4. Renewable Energy Knowledge Platform

5. AEPC : Energy Efficiency – Mobile Application

6. Energy Efficiency Helpdesk

7. Sustainable Energy Challenge Fund - Digital Application Platform

8. National Renewable Energy Management Information System (NRE-MIS)

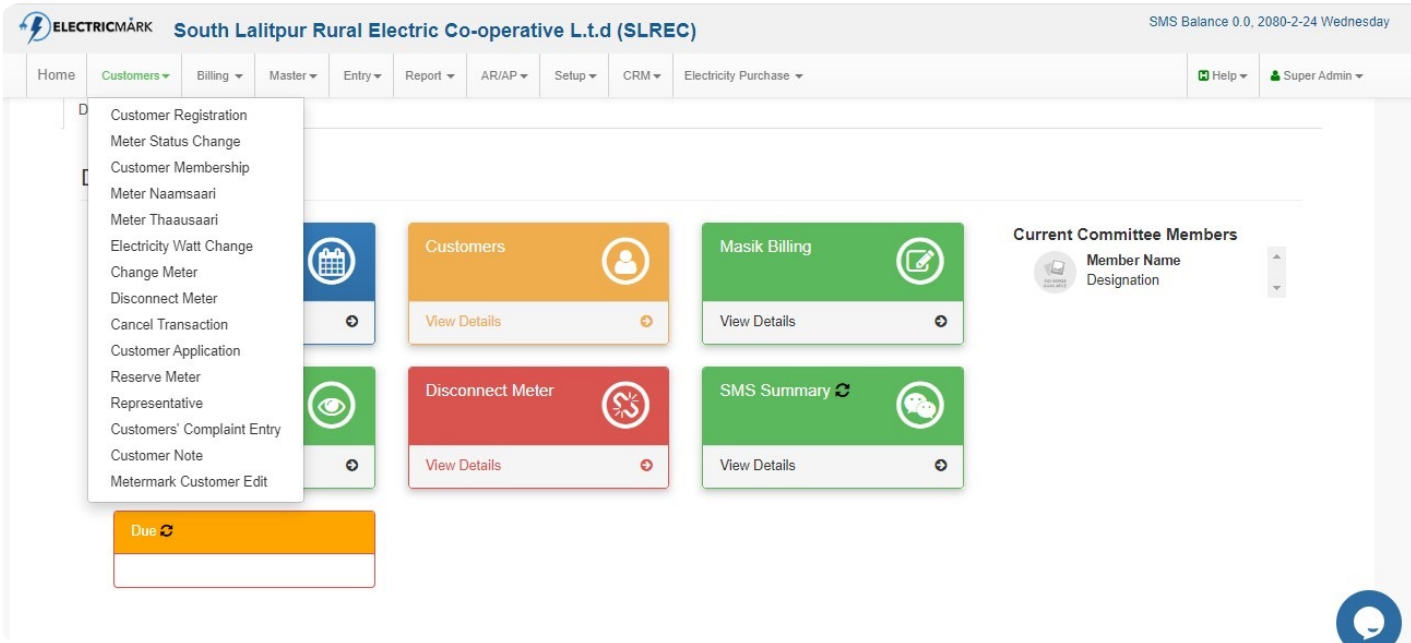
# 1. Advanced Metering Infrastructure – Smart Prepaid Meters

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- Used in Micro/Mini Hydro & Solar Mini Grid Systems for Tariff Payment
- SMS based Mobile Recharge/Payment System
- Compatible with all Cellular Network providers in Nepal



## 2. Cloud Based Utility Billing System Implemented in Mini Hydro Projects



Computer-Based Accounting  
and Record Management  
System



Simplifying decision making  
and maintain transparency



Strengthens the Off-Grid  
Operation and Management  
Ecosystem



# 3. GIS-Based Municipal Energy Planning (MEP) Planning Tool

*Digitizing Municipal Energy Planning - A Bottom-up RE-planning Tool for the new Federal Context of Nepal*



Setting Targets for Energy Programs



Supports Data-Driven Energy Analysis



Evidence-Based Planning and Monitoring



Digital Data Collection to understand the energy status quo

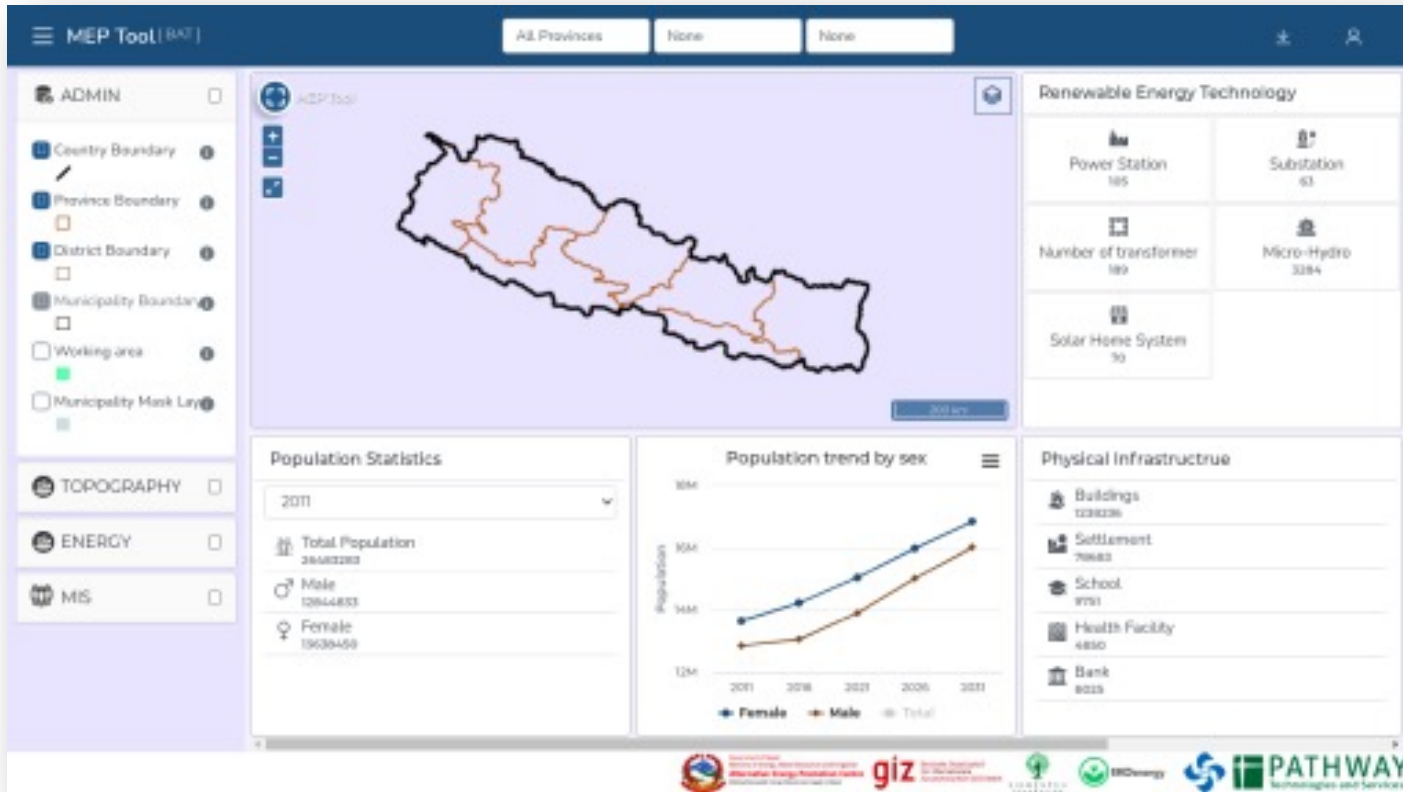


Facilitating the Energy Planning process to the Local Government Representatives and Authorities

# GIS-Based Municipal Energy Planning (MEP) Planning Tool

*Providing information for policy making and investors*

## Planning Dashboard with Map Element, Infographics and Table of Content

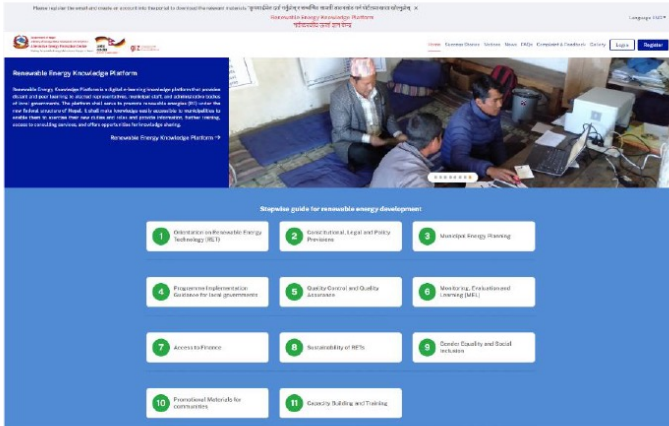


**Rolling out MEP in more than 43 local governments of Nepal**

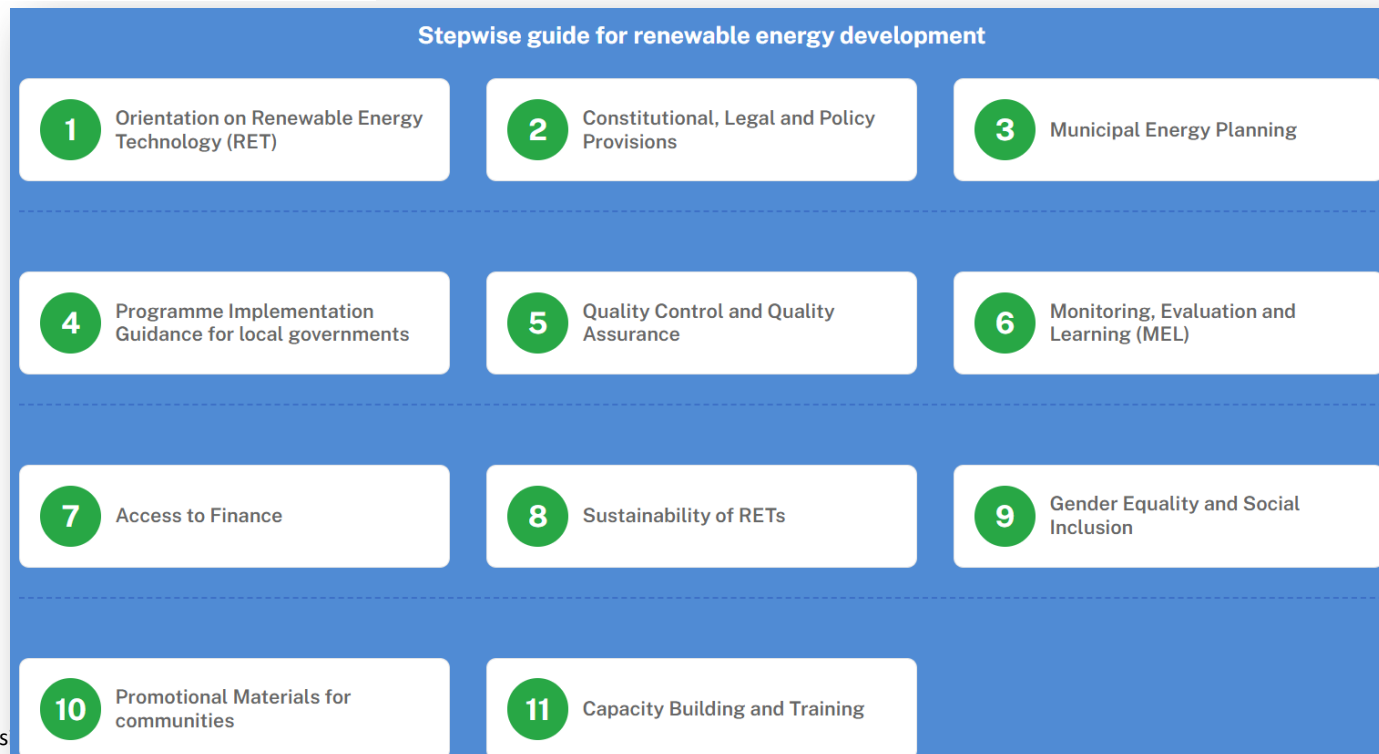
**Energy Development Sub Committee (EDSC) are Formed, 33% Women Participation**

# 4. Renewable Energy Knowledge Platform

*Necessary knowledge for developing and implementing decentralized renewable energy*



- 11 RE related topics with In-Depth information

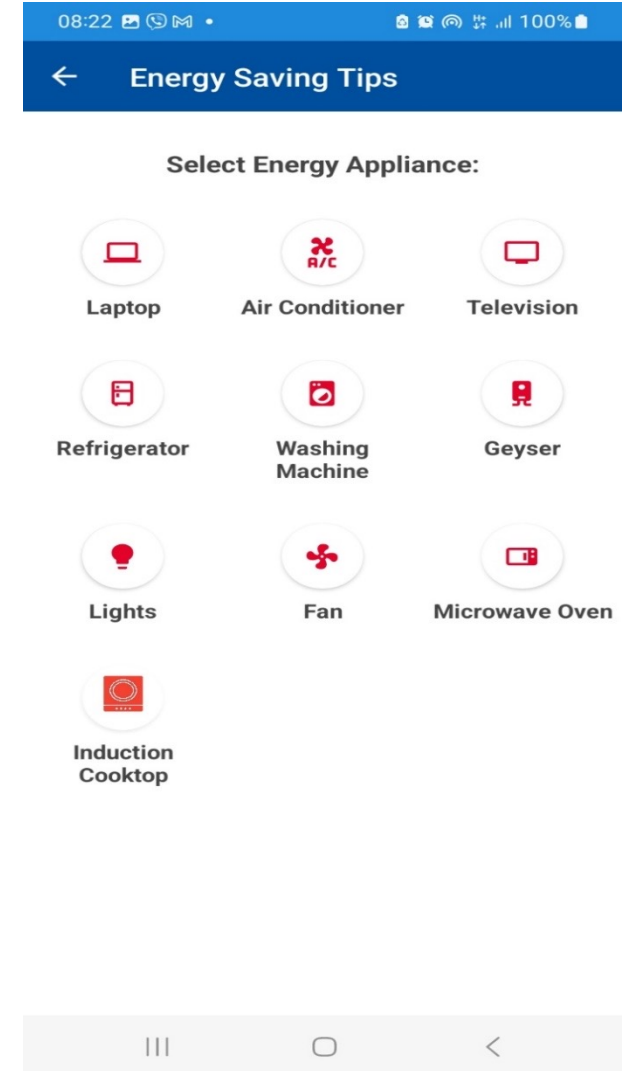
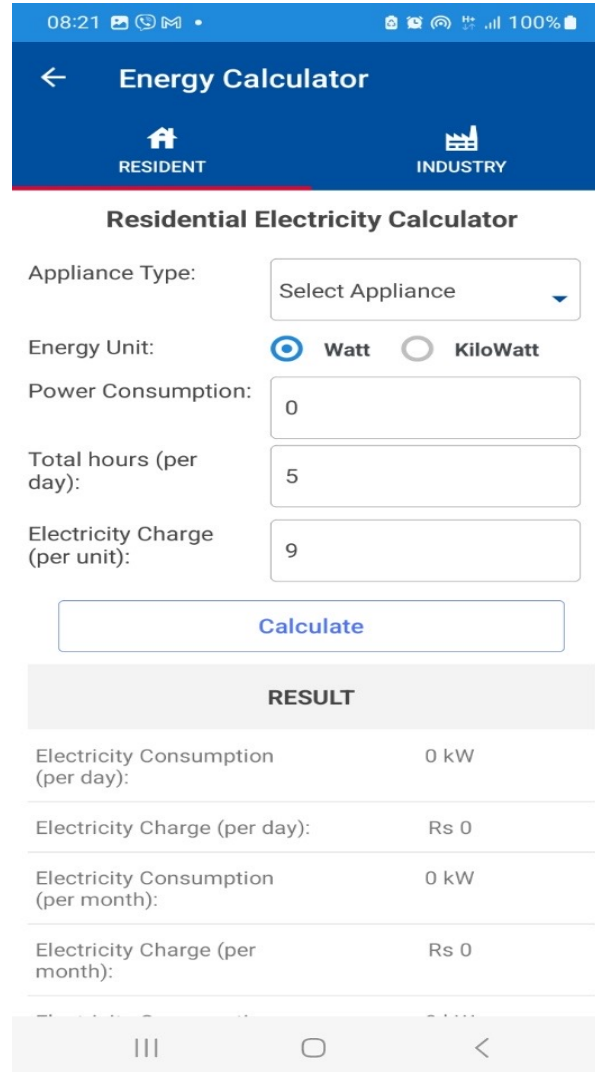
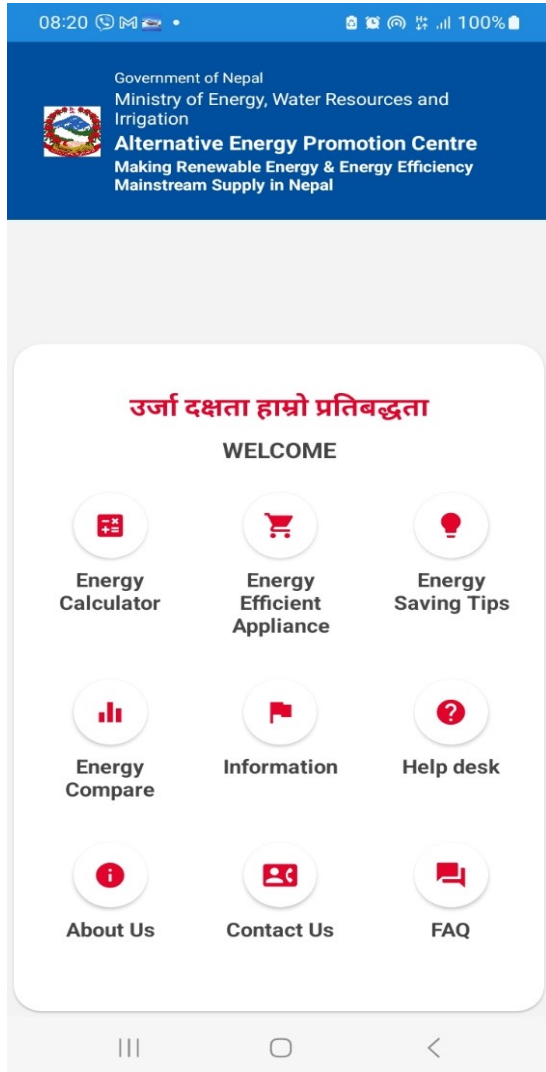


- Tailor-made information for Nepal

- Open source - Free access for anybody



# 5. AEPC : Energy Efficiency – Mobile Application





# 6. Energy Efficiency Helpdesk

*Submit your query on energy-related issues*

The screenshot shows the homepage of the Energy Efficiency Helpdesk. At the top, the browser address bar displays <https://eehelp.aepc.gov.np>. The header features the Government of Nepal logo on the left, with the text: "Government of Nepal", "Ministry of Energy, Water Resources and Irrigation", "Alternative Energy Promotion Centre", and "Making Renewable Energy Mainstream Supply in Nepal". On the right, there is a lightbulb icon and the text "ENERGY EFFICIENCY HELPDESK". Below the header is a navigation menu with links for "Home", "About", "Public Queries", "Knowledge Base", and "FAQ". A language selector shows the US flag, and a "Login" button is present. A search bar with the placeholder text "Do you have a question? Type your search term here..." and a green "Search" button is centered. Below the search bar are four white buttons with green icons: "Register" (person icon), "Submit a Query" (pencil icon), "My Queries" (tablet icon), and "Knowledge Base" (lightbulb icon).

Mostly benefitting Industries and High Energy Consuming Institutions

# 7. Sustainable Energy Challenge Fund

## Viability Gap Funding

## Results Based Payment

### Public Private Partnership

Capital expenditure support

Up to 50%

### Generation Based Incentive

Captive projects

Up to NPR 1.5 per kWh for 5 years

### System Improvement

Capital expenditure support

Up to 50% or NPR 10 million

### Interest Buydown

Captive projects

50% of interest Amount for five years

### Demand Aggregation

Market development Support

Up to 50% of cost or NPR 10 Mil\*

### Reverse Auction

Capital expenditure support

Up to NPR 10,000 per household

### Innovative RE Project

Up to 50% or NPR 10 Mil\*

### Loan Loss Guarantee

Guarantee for BFIs

20% of loan portfolio in SECF projects

**\*Whichever is lower**

Energy Access

Energy Security

Energy Transition

# Sustainable Energy Challenge Fund – Online Application Platform

The screenshot displays the SECF Dashboard interface. On the left is a dark sidebar with navigation options: Home, Challenge Fund, Concept Notes (with sub-options: Ongoing, Shortlisted, Not Shortlisted, New Concept Note), Expression Of Interest, and Event Log. The main content area is titled 'Application Form' and includes a note: 'Note: All fields ending with \* are mandatory. For mandatory numerical fields enter the relevant value or 0.' Below the note are several form sections: Applicant Data, Project Data, Technicals, Economics, Financial Status of the Lead Organization, and Declaration. The top right of the dashboard shows the user 'GIZ REEEP' and a copyright notice at the bottom: '© 2023 - Nepal Renewable Energy Programme. All Rights Reserved'.

- Total 20 Projects are being Implemented
- Leveraged 6.5 times Private Investment in RE and EE Deployment

## 8. National Renewable Energy Management Information System (NREMIS)

*A Gateway to information and data trends and development of Renewable Energy*



Complete information about DRE systems deployed throughout the country



RE Subsidy Processing – Paper Based (before 2012)  
Web Based System for RE Subsidy Record and Administration  
(Centralized Database)



Instrumental role in delivering the required data for Decision-Makers on all 3 levels of Government



# NREMIS Contd....

Government of Nepal  
Ministry of Energy, Water Resources and Irrigation  
Alternative Energy Promotion Centre  
Making Renewable Energy Mainstream Supply in Nepal

Test Company 123

Dashboard

Technology: All | Fiscal Year: 2079.080 | From Date: YYYY.MM.DD | To Date: YYYY.MM.DD

Search

Saved	24	Submitted	0	Pipeline	0	Rejected	0
Ceased	0	Disbursed	0				

DBG - ANNUAL - 2079.080	Target: 10000	Submitted: 3796	Remaining: 6204
SHS - ANNUAL - 2079.080	Target: 12000	Submitted: 12011	Remaining: -11
MICS - ANNUAL - 2079.080	Target: 3000	Submitted: 1594	Remaining: 1406
GICS (Tier 3) -ANNUAL - 2079.080	Target: 2000	Submitted: 81	Remaining: 1919

Dashboard - NRE MIS

Household Subsidy Application

Technology\*: Domestic Biogas Plant | Installation Date\*: YYYY.MM.DD

General

System's Owner Name\* | Owner Phone\* | Calling Name

Gender\* | Ethnicity\* | Target group\*

Citizenship No.\* | Citizenship Issue District\* | Citizenship Issued Date

Citizenship Address\* | Husband/Father Name | Neighbour Name

Husband/Wife/Family Mobile No. | Neighbour Mobile No.

Address of Installation

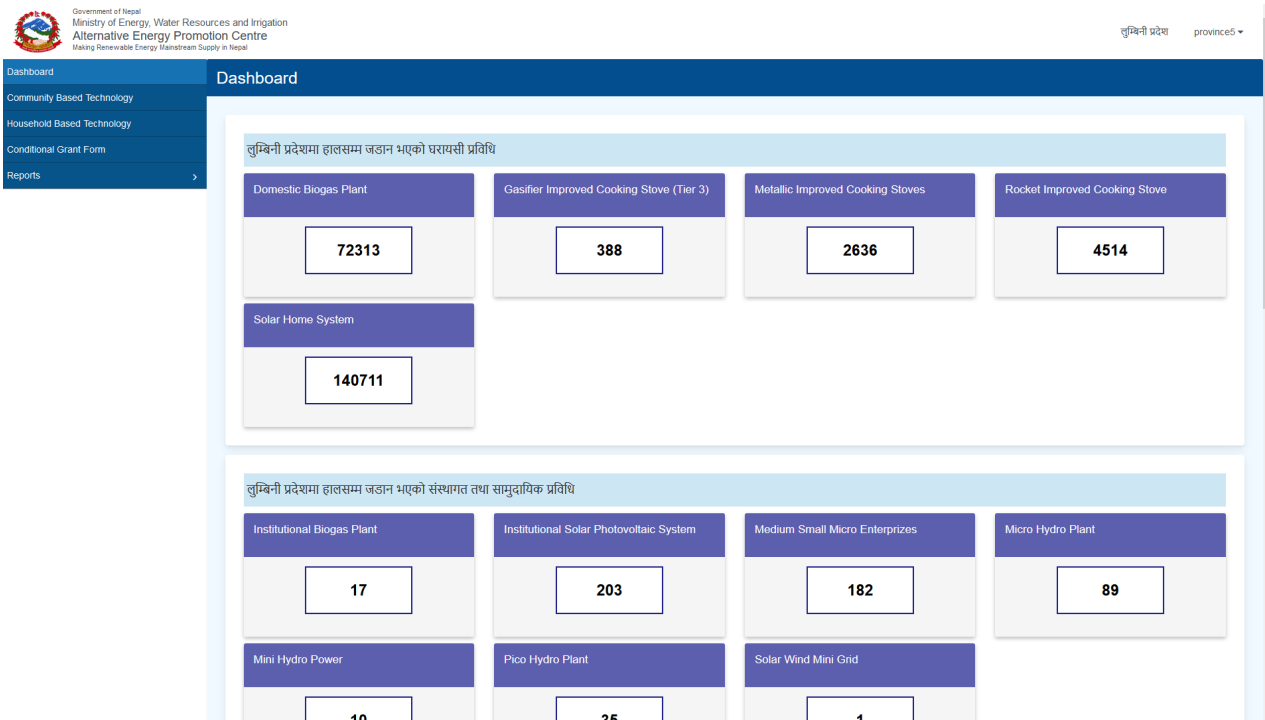
District\* | Local Government\* | Ward No\*

Tole\* | Geographical Region

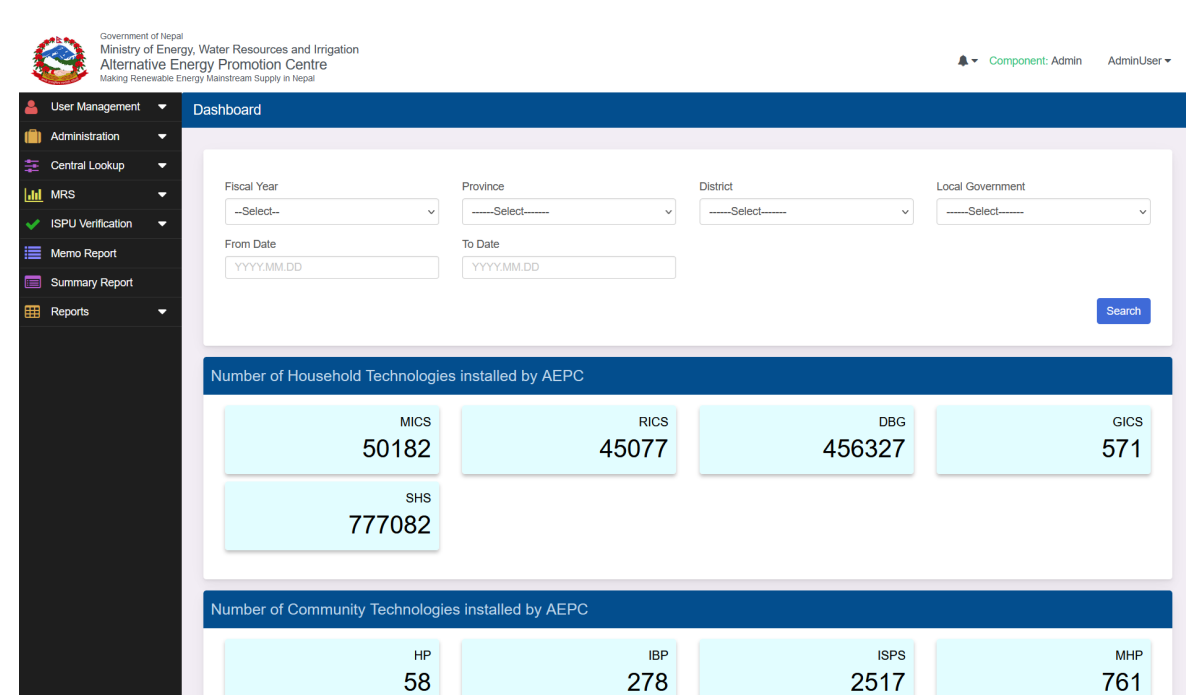
Subsidy Application Form - NRE MIS

The tool is used by AEPC to manage the DRE which is promoted by the Federal Government (**Monitoring and Verification**)

# NREMIS Contd – Central, Provincial and Local RET Profiling



## Provincial and Local RET Profiling

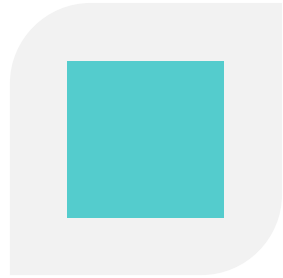


## Central Level RET Profiling

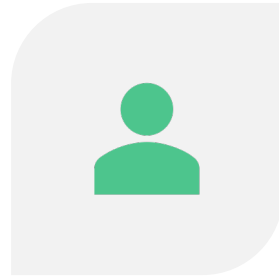
# Key Takeaways – Digitalization for Promotion of RE and EE



DRE and EE  
Promotion –  
Accelerated and  
Strengthened



Enhance Project  
Sustainability



Open access to  
information –  
within reach to  
fingertips



Data Management  
& ease in proper  
Planning &  
Budgeting



Adaptability &  
Scalability

Energy Savings is five times cheaper than to generate same energy



Save Energy

ENERGY SAVED



ENERGY GENERATED.



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Ministry of Energy, Water Resources and Irrigation  
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# Thank You

**Shubha Laxmi Shrestha, Assistant Director**

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