



PILOT PROJECT ACHIEVING UNIVERSAL ACCESS TO CLEAN COOKING IN BHUTAN WITH ELECTRIC COOKSTOVES

Ugyen Rinzin

Department of Energy
Ministry of Energy and Natural Resources
Royal Government of Bhutan

Asia Clean Energy Forum 2023
14 June 2023, Manila

Bhutan Overview

- ❑ Located in the Himalayan region
- ❑ Total land area of 38,394 Sq KM
- ❑ Total Population is approximately than 750,000
- ❑ CARBON NEGATIVE COUNTRY



Bhutan's Energy Scenario

Major source of electricity from Hydro Power Plants with installed capacity of 2326 MW



The share of alternative RE is very minimal amounting to 723 kW Solar PV plant and 600 kW Wind power plant



Heavy reliance on imported petroleum products including LPG for cooking.



Background of pilot project development

Launched the SDG 7 roadmap on May 2022

SDG 7.1.1 – access to electricity

Bhutan achieved universal access to electricity in 2018, up from a 98.4 percent access rate in 2017

SDG 7.1.2 – access to clean fuels and technologies for cooking

Under the current policy setting, it is projected that the clean cooking access rate will increase from 78.3 per cent in 2017 to 90.0 per cent by 2030.

Improved cooking stoves is recommended as the most appropriate technology for filling in the clean cooking gap.



Energy Transition Pathways for the 2030 Agenda

SDG7 Roadmap for Bhutan

ESCAP/Royal Govt. of Bhutan identified the challenges and gaps in achieving universal access to clean cooking

Access to clean cooking rate was 80% in 2020

In 2030, under the current policies, ~ 20,000 households will rely on cooking with traditional biomass and kerosene

Severe health impacts would arise if this is not addressed

Government's recommendation

Honourable Minister for Economic Affairs urged not to consider LPG cookstoves to increase clean cooking access

Import of LPG is to be reduced

Alternative options to clean cooking is to be sought



Energy Transition Pathways for the 2030 Agenda

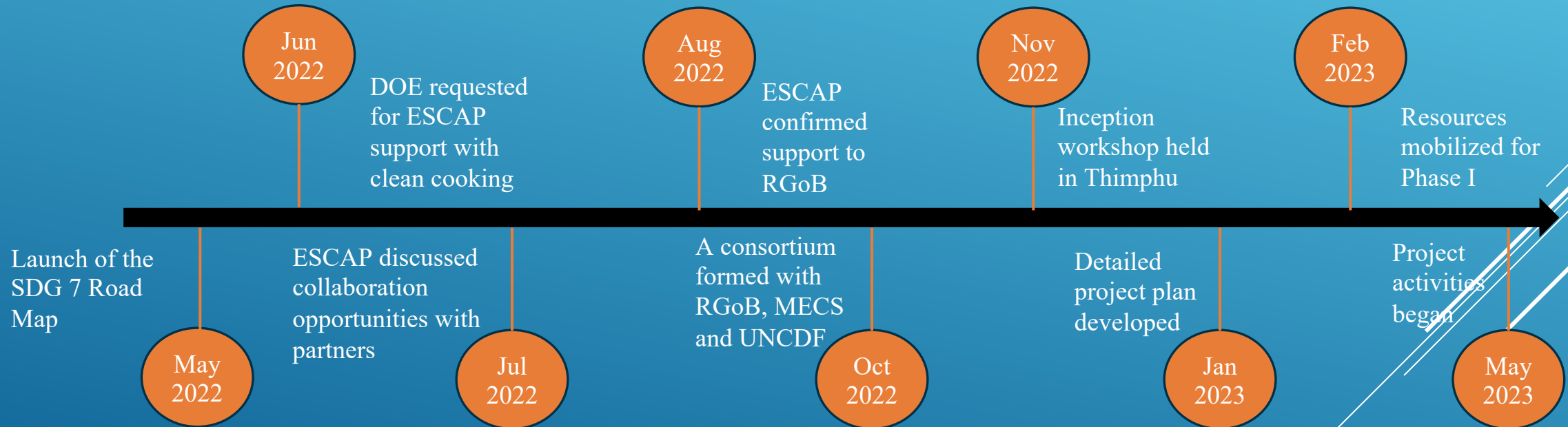
SDG7 Roadmap for Bhutan

Rationale for Electric Cookstoves

- ❖ LPG is imported
- ❖ Bhutan has already achieved universal access to electricity
- ❖ Electricity tariff is one of the lowest in the region, and globally
- ❖ Electric (induction + infra red) cookstoves are highly efficient – boosting energy efficiency



PILOT PROJECT DEVELOPMENT: PROCESS AND TIMELINE



Trial of induction electric cookstoves (with built-in IoT) in 37 households is underway in Phase I

Phase 1 (2023) Activities

- ❖ Development of cooking diary through Controlled Cooking Test (CCT) for popular Bhutanese cuisines
 - Using LPG cookstove, electric cookstove and Electric Pressure Cooker
 - Develop e-cookbook
- ❖ Trial of electric cookstoves in 37 households
 - Using LPG and electric stove
- ❖ Data collection
 - Energy consumption and time needed to cook regular household dishes using existing stoves and electric cookstoves
 - Any changes in taste of food cooked with electric cookstoves

Carbon Finance Arrangement

- ❑ Royal Government of Bhutan and Government of Singapore has signed Article 6 carbon trading cooperation MoU on 16 May 2023
- ❑ To identify mutually beneficial Article 6 compliant carbon credit projects to support both countries achieve their NDCs
- ❑ Possibility of financing clean cookstoves through this mechanism
- ❑ Electric cookstoves with built-in IoT is expected to offer accurate data monitoring to realize carbon credits

PLANNED ACTIVITIES IN PHASE II (2024 - 2027)

Secure finance for 30,000 electric cookstoves – carbon credits

Roll out cookstoves through existing domestic businesses and supply channels

Build local production and after-sales-service capacity

Continue to monitor key data sets for carbon credit compliance (if applicable), power grid planning and improvement in future program delivery

Showcase success stories to other countries that are aiming to achieve universal access to clean cooking

Produce annual reports to document learnings and observations

BEYOND 2027

Identify financing avenues to fund electric cookstoves for the remaining households

Attract investments in electric cookstoves

Establish local production capacity of electric cookstoves

Promote electric cookstoves to households that currently use LPG cookstoves to reduce the import of LPG

THANK YOU

The image features a solid blue background with a subtle gradient. The text "THANK YOU" is centered in a white, serif font. In the bottom right corner, there are several white, parallel diagonal lines that create a sense of movement and modern design.