

Development of SDG 7 Road Map for Kazakhstan

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Outline

- How to plan for Sustainable Development Goal 7?
- Background of SDG 7 roadmap development
- What is an SDG 7 roadmap and how it helps?
- NEXSTEP methodology
- Anticipated results
- Developing SDG 7 roadmap using NEXSTEP
- Contents of a roadmap



Global framework for SDG 7

GOAL

TARGETS

INDICATORS



7.1 ensure **universal** access to affordable, reliable and modern energy services

7.2 increase **substantially** the share of renewable energy in the global energy mix

7.3 **double** the **global** rate of improvement in energy efficiency

Proportion of population with access to **electricity**

Proportion of population with primary reliance on **clean fuels** and technology

Renewable energy share in the total **final energy consumption**

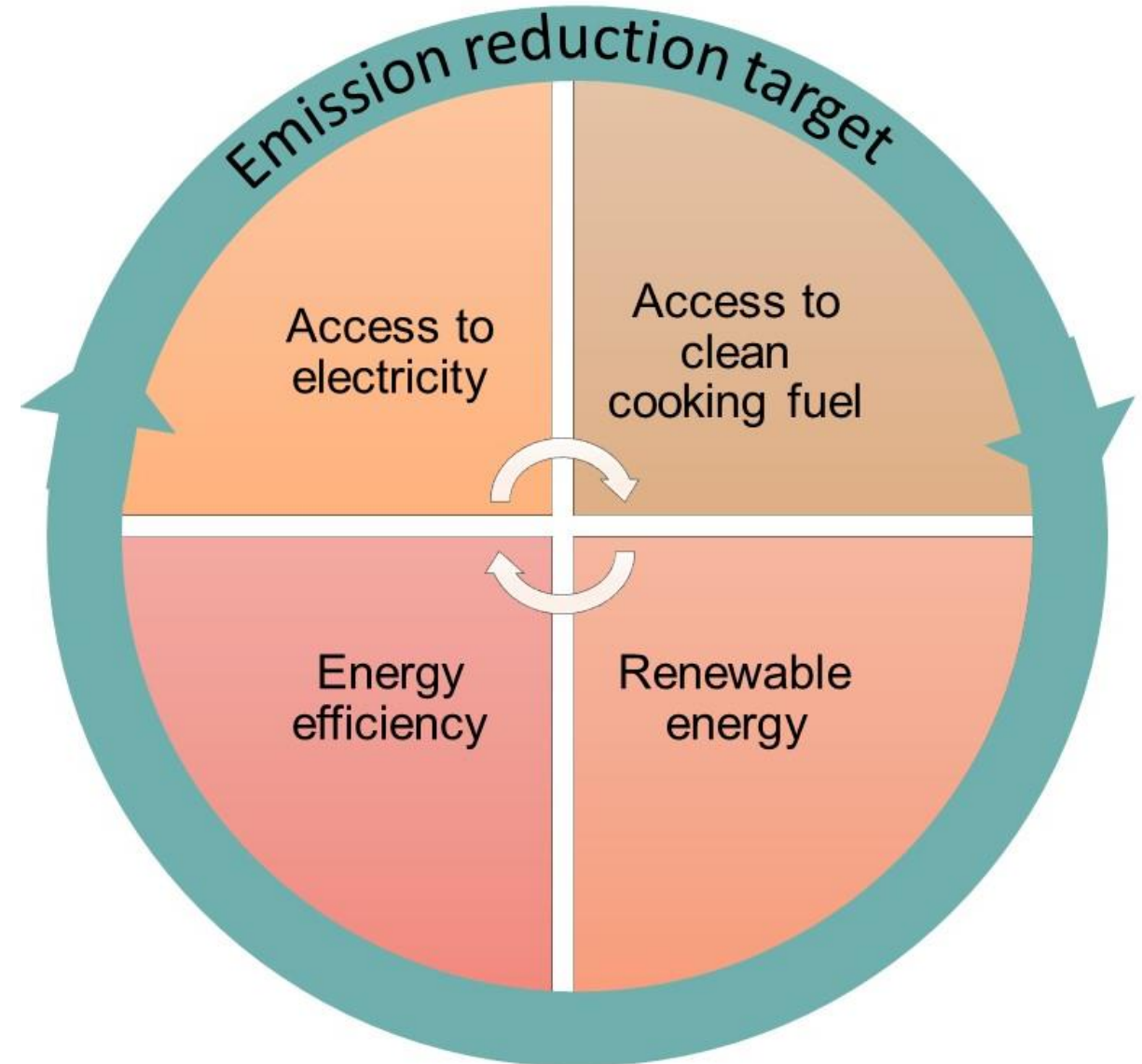
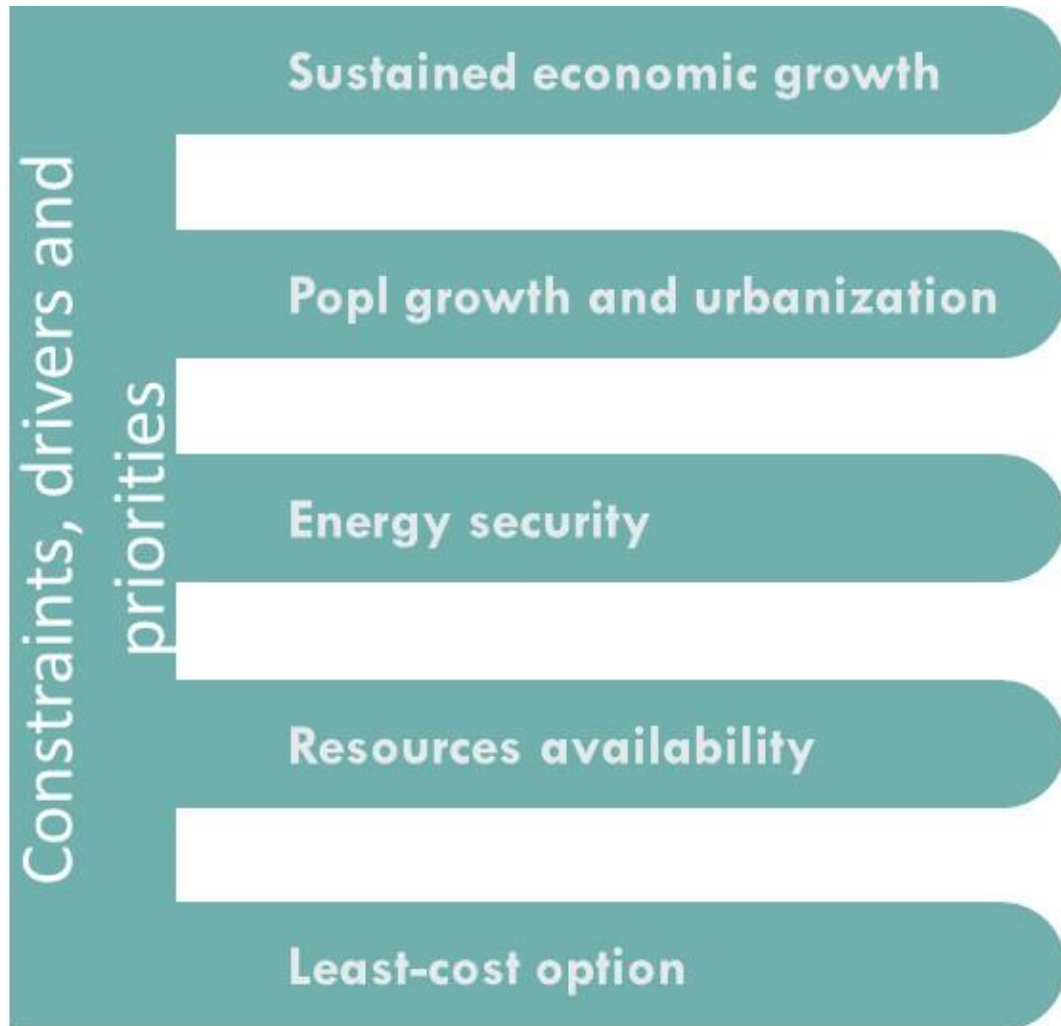
Energy **intensity** measured in terms of **primary energy and GDP**

SDG definition of clean cooking fuel: <https://unstats.un.org/sdgs/metadata/files/Metadata-07-01-02.pdf>

SDG definition of renewable energy: <https://unstats.un.org/sdgs/metadata/files/Metadata-07-02-01.pdf>

SDG definition of energy intensity: <https://unstats.un.org/sdgs/metadata/files/Metadata-07-03-01.pdf>

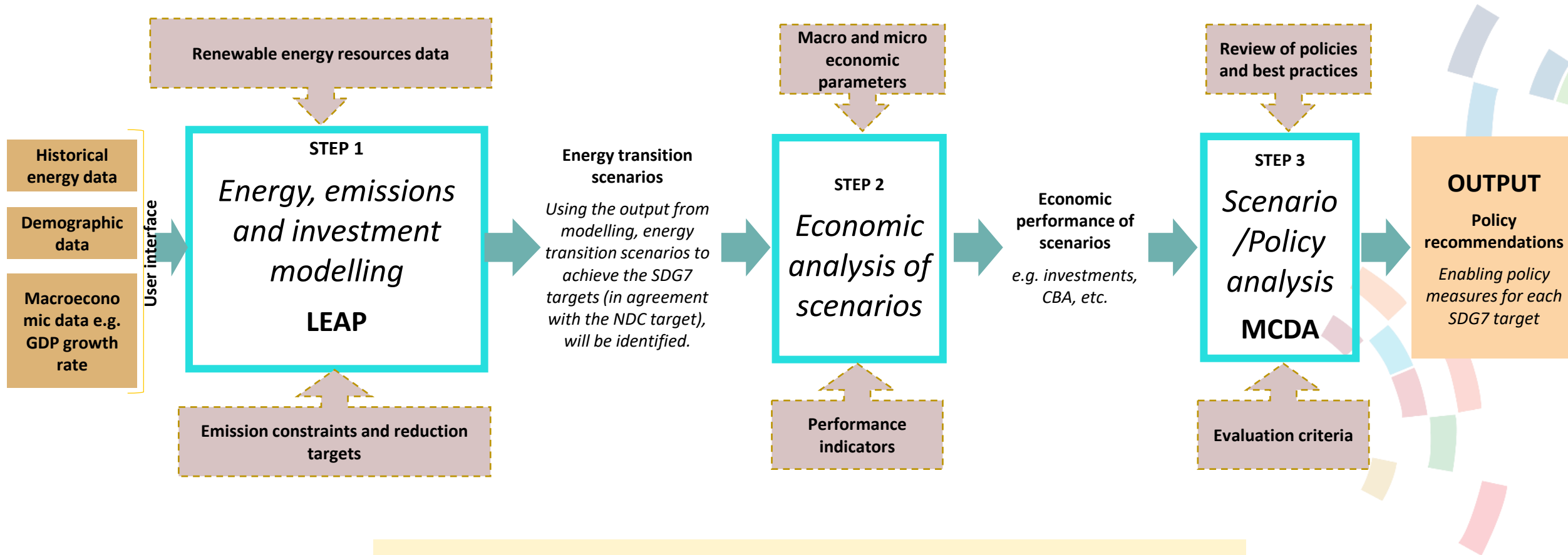
An integrated approach to 2030 energy transition



National Expert SDG Tool for Energy Planning (NEXSTEP)

An **integrated tool** to assist policymakers make informed **policy decisions** that would help achieve **sustainable energy transition**.

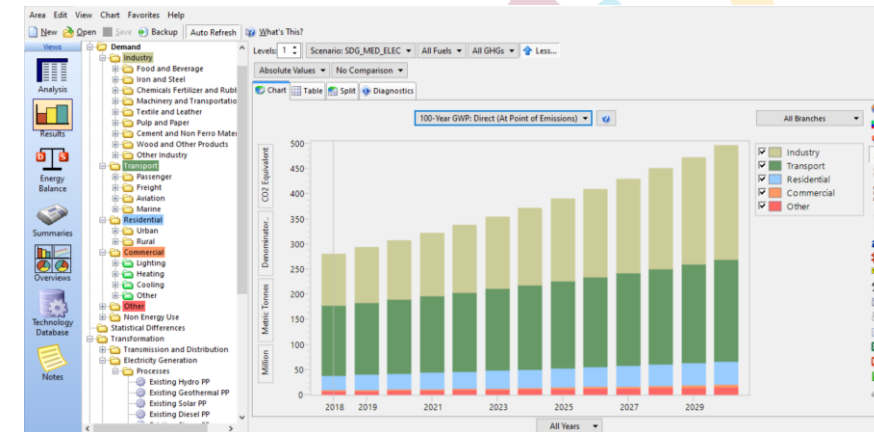
NEXSTEP methodology



The unique feature of this methodology is the backcasting approach for energy and emissions modelling which is important for the case of SDG7 planning.

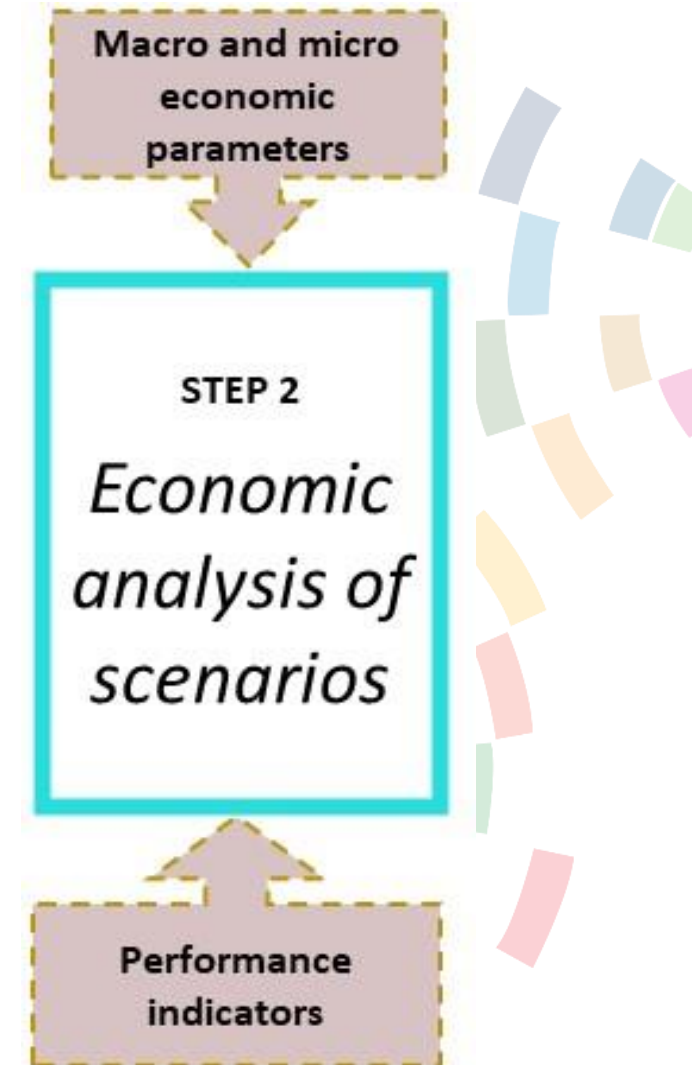
Methodology – Component 1

- Modelling of energy and emissions is undertaken using Low Emissions Analysis Platform (LEAP)
- Helps to develop a number of scenarios
 - Using various demographic and macro-economic data and information
- The Least Cost Optimization method is used to calculate the optimal expansion and dispatch of the electric power system



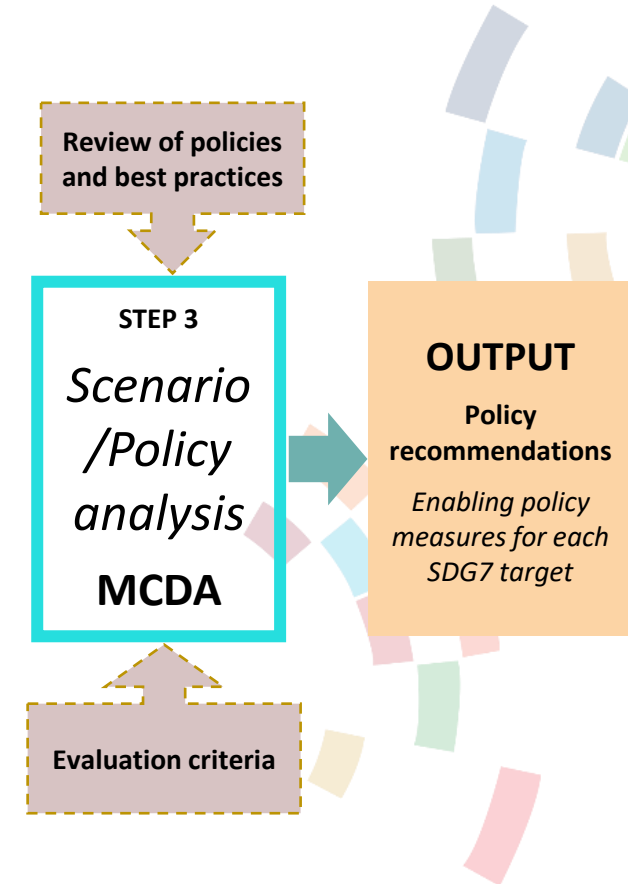
Methodology - Component 2

- Economic analysis involves
 - Estimating the cost of electricity supply plus local generation (if any)
 - Identify the cheapest option of electricity generation, E.g.
 - Fuel switching
 - Contracting – through PPA, RE Auction, etc.
 - Helps make a decision on future power supply options
 - Assess the potential for increasing share or RE in power



Methodology – Component 3

- Multi-Criteria Decision Analysis (MCDA) is a popular tool in the public and private sector to help in making a policy decision
- It enables compare and contrast various policies and scenarios using a set of defined indicators
- Ideally this is done in a stakeholder consultation workshop
 - Assessing criteria should represent a wide range of stakeholders
 - Helps to avoid any bias
 - Weights are chosen in consensus

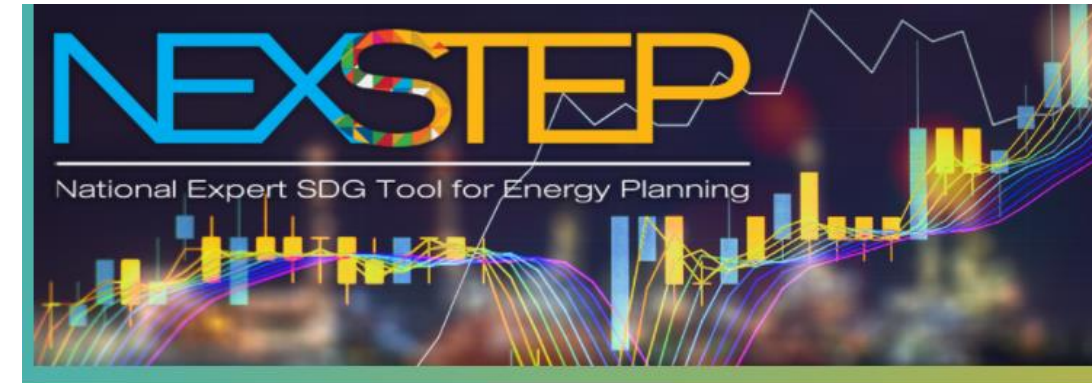


Expected output

- Energy demand and supply scenarios – BAU, CPS, SDG and ambitious scenarios.
- Technology identification and prioritisation for each scenario,
- Policy options to achieve the targets of SDG7 and NDC,
- Investment estimation and cost-benefit analysis for each scenario;
- Marginal abatement cost curve (MACC),
- Levelised cost of Electricity (LCOE)

NEXSTEP online portal

- Data from LEAP are extracted and uploaded on to the portal
- Can be accessed from anywhere
- Data and graphs can be downloaded
- Policy recommendations can be viewed
- Customised reports can be generated



ENERGY MODELING

Energy and emissions modelling will help estimate the share of different energy resources, and identify the technological interventions needed to achieve those shares.

[ENERGY MODELING](#)

ECONOMIC ANALYSIS

Economic analysis to identify the economically feasible options/interventions.

[ECONOMIC ANALYSIS](#)

SCENARIO ANALYSIS

Scenario analysis to determine/identify the policies that are feasible for implementation in the national context.


[SCENARIO ANALYSIS](#)

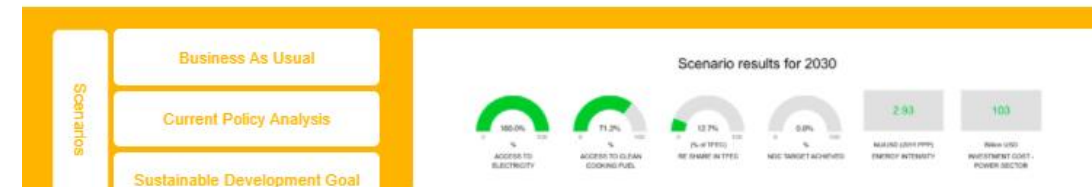
Technology Database

Technology Database allows users to estimate the Economic, Social, and Environmental impacts of different technologies.

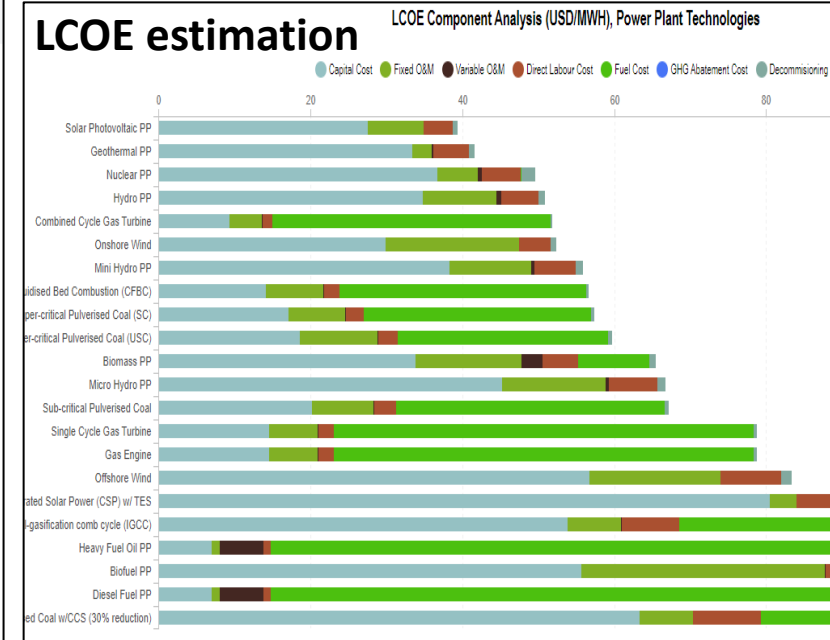
[TECHNOLOGY DATABASE](#)





NEXSTEP – capacity building



Introduction to LEAP

E-learning Program: SDG 7 roadmap development using NEXSTEP: Module 6: Energy and emissions modelling using LEAP

Data input mode

Main bar | Different viewing options | Data input navigation panel

Scenario selection | Units and scales | Data input panel

Module 06: Energy and emissions modelling using LEAP

Online training module

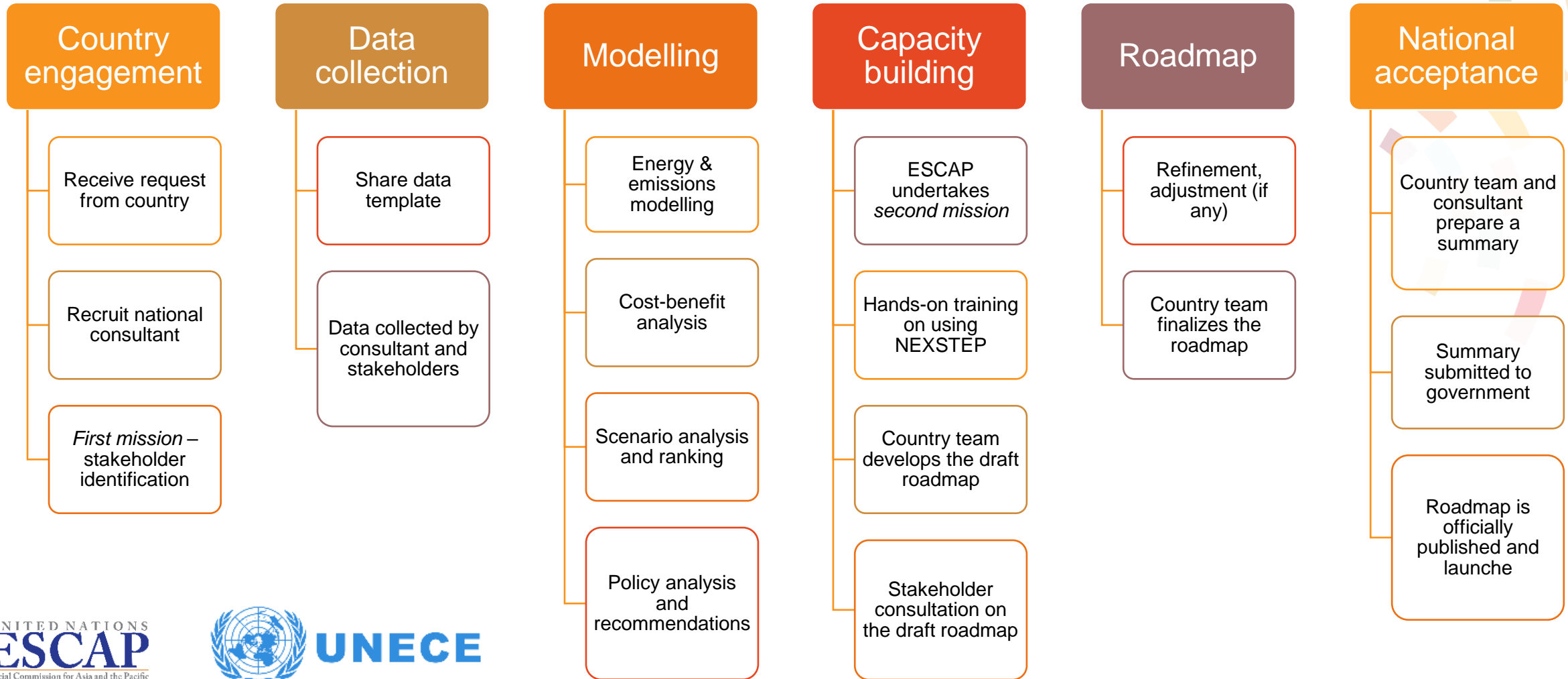
Energy appliances database

Input | Technology Database

Technology	Technology Type	Efficiency Rating	Capacity/Size (Tons)	Annual Operating Cost (Cost of electricity) (\$/year)
Air Conditioning (Window)	Variable Speed Compressor	Medium		
Air Conditioning (Window)	Fixed/Single Speed Compressor	Medium	1	96.62
Air Conditioning (Window)	Fixed/Single Speed Compressor	High	1	89.49
Air Conditioning (Window)	Variable Speed Compressor	Medium	1	83.36
Air Conditioning (Window)	Variable Speed Compressor	High	1	65.25
Air Conditioning (Window)	Fixed/Single Speed Compressor	Medium	1.5	133.41
Air Conditioning (Window)	Fixed/Single Speed Compressor	High	1.5	121.23
Air Conditioning (Window)	Variable Speed Compressor	Medium	1.5	105.65
Air Conditioning (Window)	Variable Speed Compressor	High	1.5	103.78
Air Conditioning (Window)	Fixed/Single Speed Compressor	Medium	2	177.74
Air Conditioning (Window)	Variable Speed Compressor	Medium	2	140.45
Air Conditioning (Window)	Variable Speed Compressor	High	2	136.1

Showing 1 to 12 of 12 rows | 20 rows per page

SDG 7 roadmap development process using NEXSTEP



Structure of the roadmap

Executive summary

- Summary for policymakers
- Key results and findings
- Important policy directions

Introduction

Background

Targets and indicators for the country

Emission reduction target

NEXSTEP methodology

Key steps

Scenario definitions

Economic analysis

Overview of the energy sector

Current situation

Energy profile of the country

Existing policies & targets

Energy resources

Energy balance

Energy demand outlook

SDG 7 targets by 2030

Energy demand

Achieving key goals and targets

Power generation

Policy actions

Raising ambition

Enhancing EE

Fossil fuel phase out

Price on carbon

Green financing

MACC

COVID-19 recovery

Importance of sust. energy

Reducing financial risks

Savings from the energy sector

Restructuring fiscal measures

Revisiting existing policies

Comparing CPs and NEXSTEP analysis

Identifying gaps

Recommendations to bridge the gap

Roadmaps developed

SDG 7 roadmap – national level

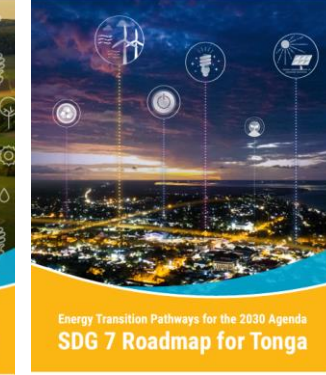
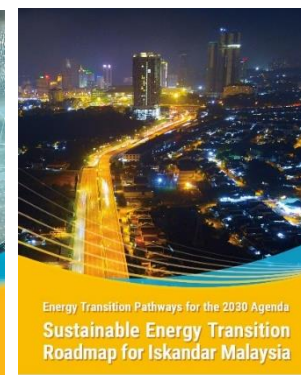
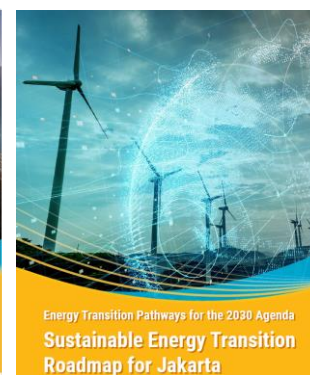
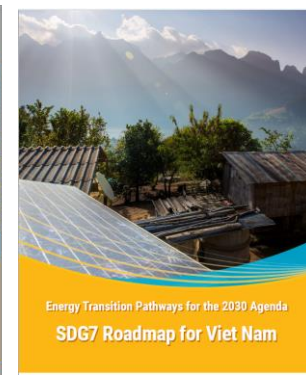
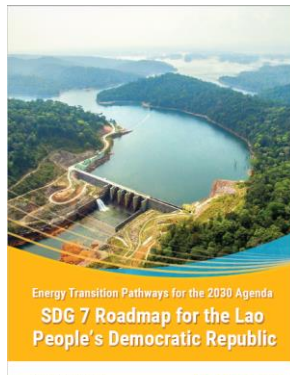
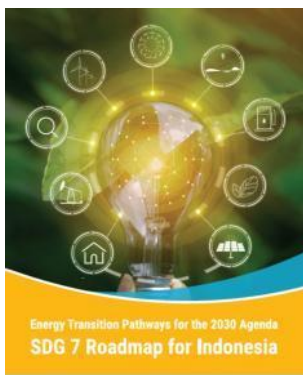
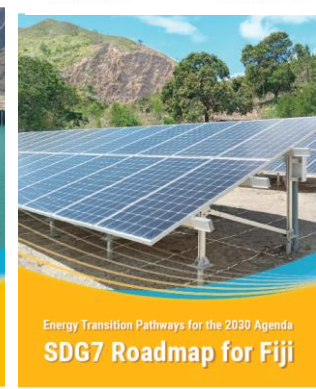
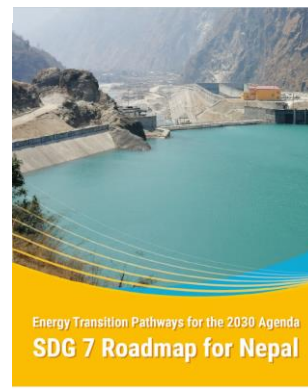
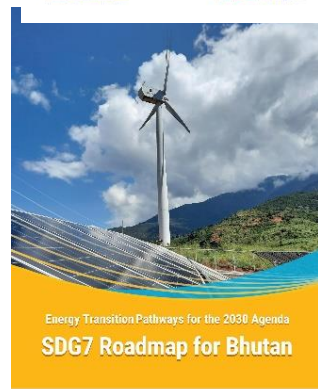
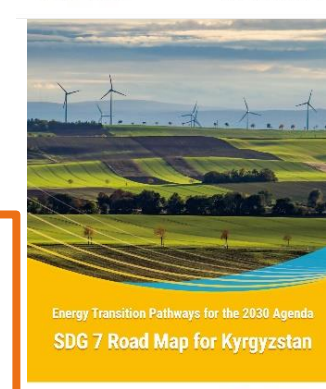
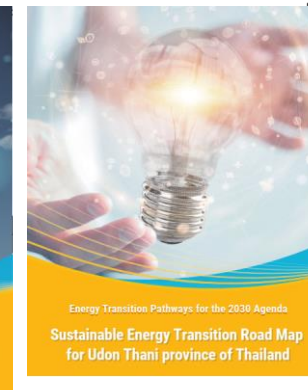
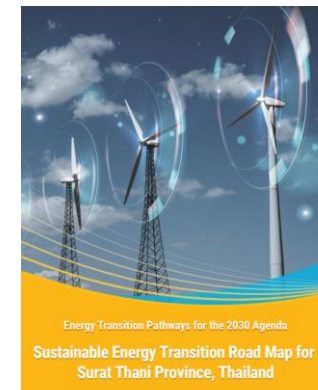
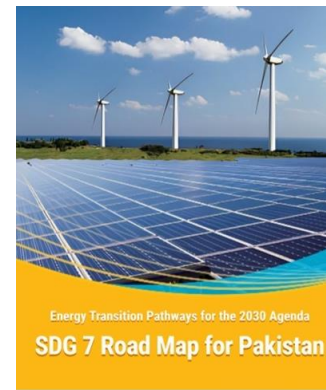
- Bhutan
- Fiji
- Georgia
- Indonesia
- Lao PDR
- Nepal
- Tonga
- Viet Nam
- Kyrgyzstan

Sustainable energy transition roadmap – sub-national level

- City of Jakarta, Indonesia
- Iskandar, Malaysia
- City of Cauayan, Philippines
- Provinces of Thailand - Surat Thani, Udon Thani and Chiang Rai

Ongoing

- Armenia
- Kazakhstan
- Uzbekistan
- Kiribati
- Micronesia
- Mongolia
- Cities of the Philippines – Borongan, Ormoc and Quezon



Thank you

