#### **Inception Workshop**

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

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** 

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

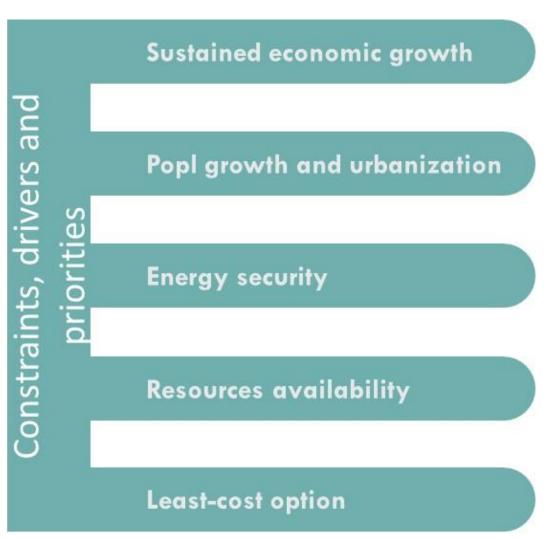
Energy **intensity** measured in terms of **primary energy and GDP** 

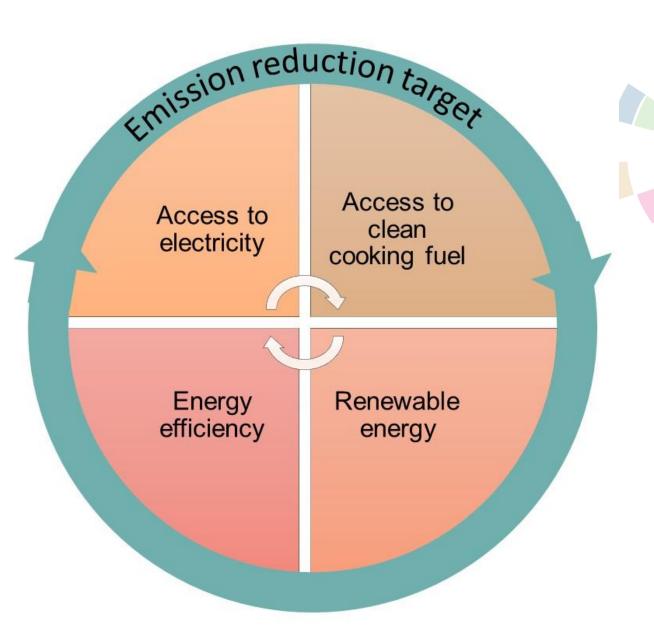




National Expert SDG Tool for Energy Planning

energy transition





## National Expert SDG Tool for Energy Planning (NEXSTEP)

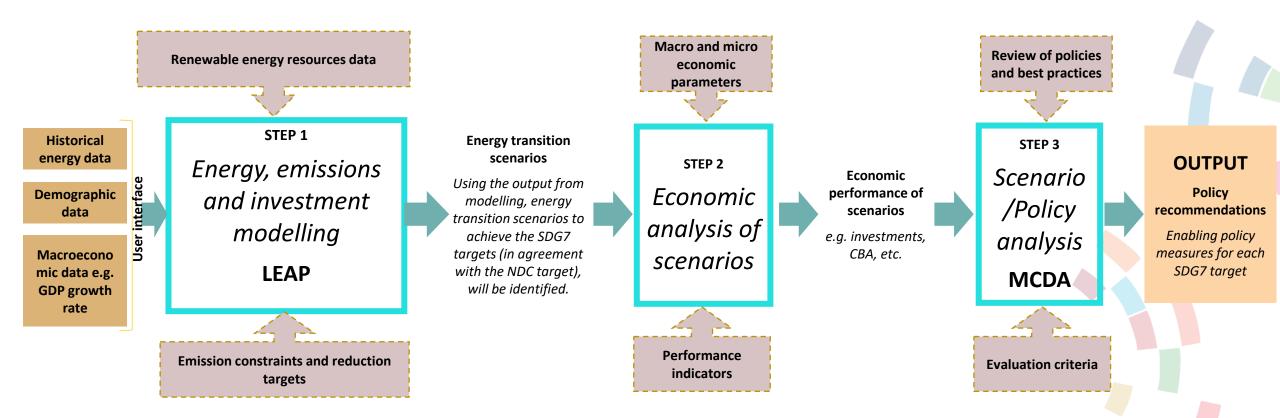


An integrated tool to assist policymakers make informed policy decisions that would help achieve sustainable energy transition.





## **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.

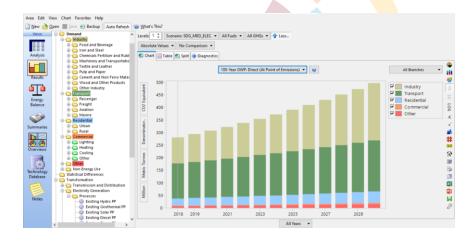




## **Methodology – Component 1**

- 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



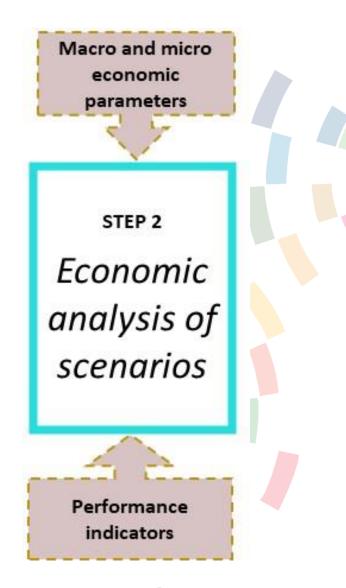






- Economic analysis involves
  - Estimating the cost of electricity supply plus local generation (if any)
  - Identify the cheapest option of electricity generation, E.g.
    - Fuel switching
    - Contracting through PPA, RE Auction, etc.
  - Helps make a decision on future power supply options
  -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



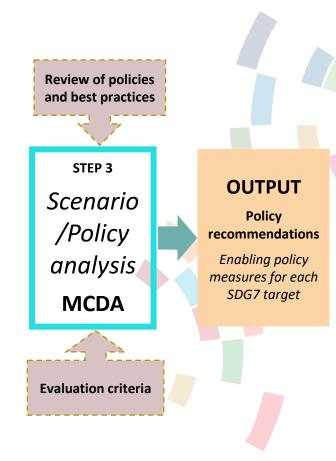






## Methodology – Component 3

- 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

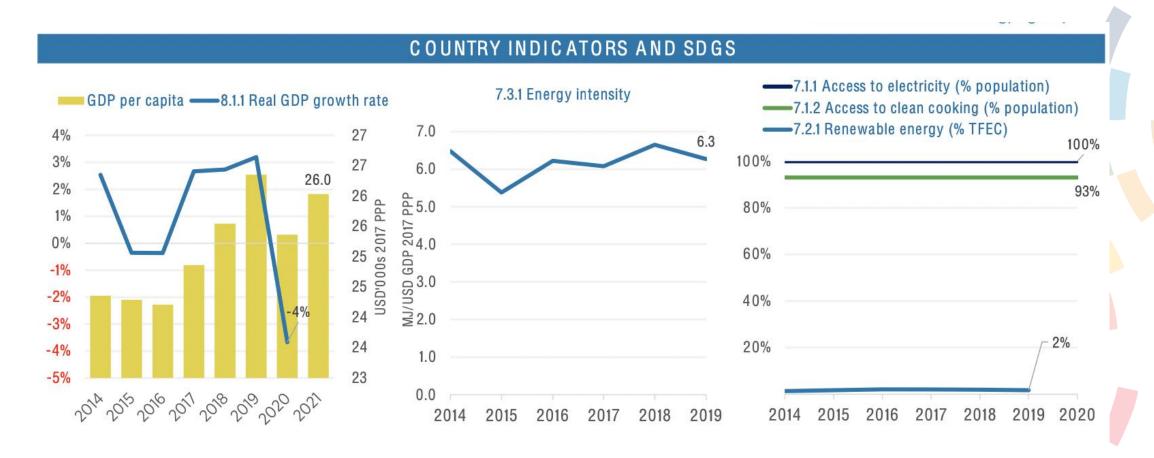








#### Kazakhstan SDG 7 status.



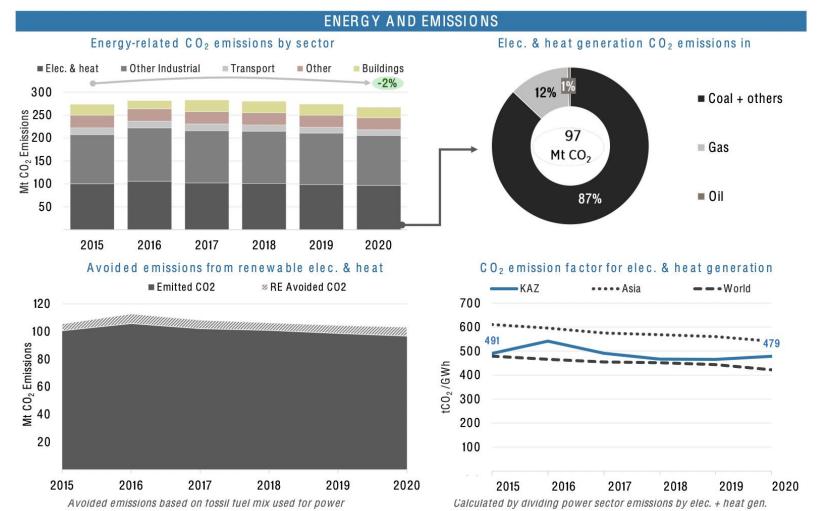
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#### Kazakhstan. Energy and emissions.



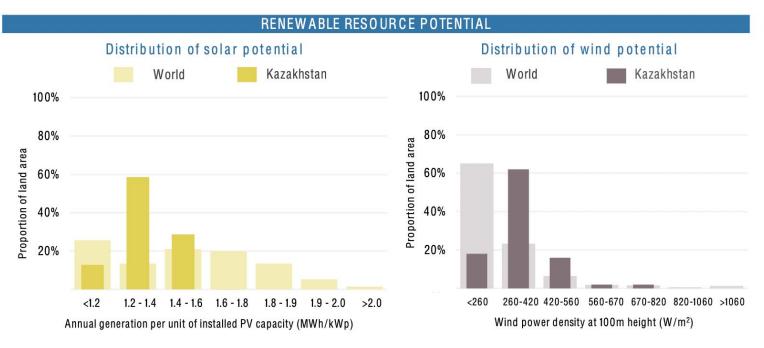


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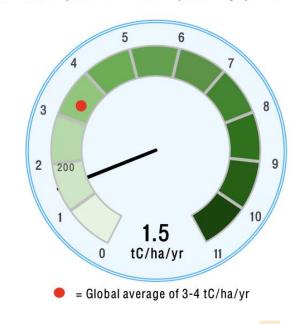




#### Kazakhstan. Renewable Energy potential.













## **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)



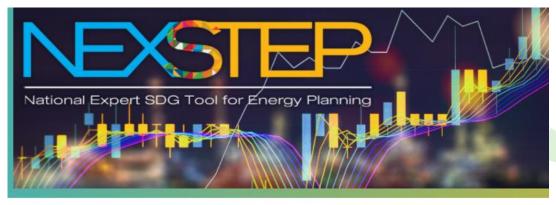


## **NEXSTEP** online portal

- 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

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

ENERGY MODELING

#### **ECONOMIC ANALYSI**

Economic analysis to identify the economically feasible options/interventions.

ECOMOMIC ANAL

#### SCENARIO ANALYS

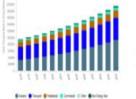
Scenario analysis to determine/identify the policies that are feasible for implementation in the national context.

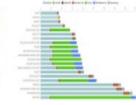
SCENARIO ANALYSIS

#### Technology Database

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

TECHNOLOGY DATABASE





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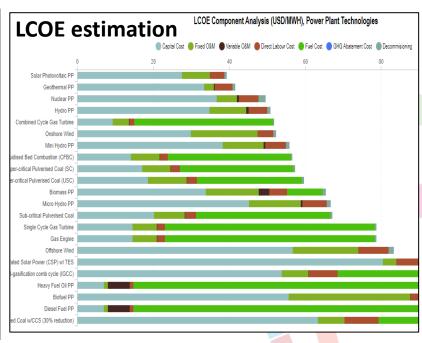


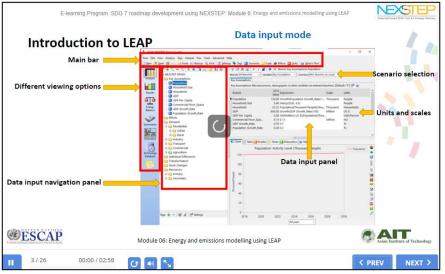


## **NEXSTEP – capacity building**









Online training module

■ NOSTEP @ESCAP								
	Home / Technology Database	Energy appliances database						
Category	Technology Database							
Energy Efficiency	I≣ ▼ select/deselect parameters							
Technology								
Air Conditioning (Window)	Technology \$				Annual Operating Cost (Cost of electricity) (\$/year)			
Technology Type								
Variable Speed Compressor	Air Conditioning (Window)	Variable Speed Compressor	Medium					
Efficiency Rating	Air Conditioning (Window)	Fixed/Single Speed Compressor	Medium	1	96.62			
Capacity/Size (Tons)	Air Conditioning (Window)	Fixed/Single Speed Compressor	High	1	89.49			
	Air Conditioning (Window)	Variable Speed Compressor	Medium	1	68.35			
Nominal Power Consumption (Watts)	Air Conditioning (Window)	Variable Speed Compressor	High	1	65.25			
Average Number of hours used per day (h/day)	Air Conditioning (Window)	Fixed/Single Speed Compressor	Medium	1.5	133.41			
8	Air Conditioning (Window)	Fixed/Single Speed Compressor	High	1.5	121.23			
Average number of days used in a year days/year)	Air Conditioning (Window)	Variable Speed Compressor	Medium	1.5	105.65			
200	Air Conditioning (Window)	Variable Speed Compressor	High	1.5	103.78			
Capital Cost (\$)	Air Conditioning (Window)	Fixed/Single Speed Compressor	Medium	2	177.74			
Lifespan (years)	Air Conditioning (Window)	Variable Speed Compressor	Medium	2	140.45			
Old Falada Fada (OO)	Air Conditioning (Window)	Variable Speed Compressor	Hgh	2	136.1			
Grid Emission Factor (tCO2e/MWh)  0.679	Showing 1 to 12 of 12 rows 20 a rows per page							
Average Electricity Tariff (USD/kWh)								



#### SDG 7 roadmap development process using NEXSTEP

Country engagement

Receive request from country

Recruit national consultant

First mission – stakeholder identification

Data collection

Share data template

Data collected by consultant and stakeholders

Modelling

Energy & emissions modelling

Cost-benefit analysis

Scenario analysis and ranking

Policy analysis and recommendations

Capacity building

ESCAP undertakes second mission

Hands-on training on using NEXSTEP

Country team develops the draft roadmap

Stakeholder consultation on the draft roadmap

Roadmap

Refinement, adjustment (if any)

Country team finalizes the roadmap

National acceptance

Country team and consultant prepare a summary

Summary submitted to government

Roadmap is officially published and launche







## Structure of the roadmap

#### **Executive summary**

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

#### Introduction

Backgroun d

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

Recommendati ons to bridge the gap



## Roadmaps developed

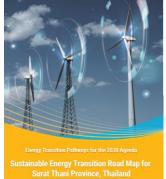
#### SDG 7 roadmap national level

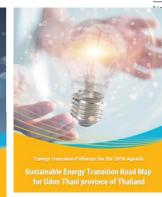
- Bhutan
- Fiji
- Georgia
- Indonesia
- Lao PDR

Sustainable energy transition roadmap – subnational level

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

# SDG 7 Road Map for Pakistan







ESCAP

NEXSTEP

**ESCAP** 

NEXSTEP

NEXSTEP

**ESCAP** 

NEXSTEP

SDG7 Roadmap for Fiji

**ESCAP** 

ESCAP





#### **Ongoing**

- Armenia
- Kazakhstan
- Uzbekistan
- Kiribati

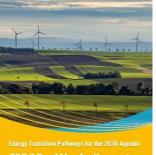
Nepal

Tonga

Viet Nam

Kyrgyzstan

- Micronesia
- Mongolia
- Cities of the Philippines – Borongan, Ormoc and Quezon



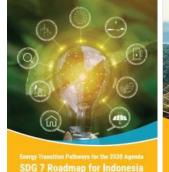
**ESCAP** 

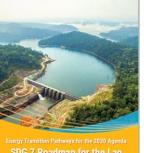
NEXSTEP

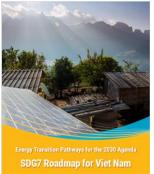
SDG7 Roadmap for Bhutan

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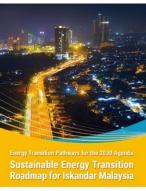
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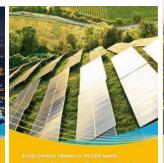










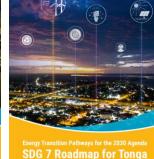






SDG 7 Roadmap for Nepal

SDG 7 Roadmap for Georgia



NEXSTEP

















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## Thank you





