Role of Renewable Energy in the Philippines' Energy Transition

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Contents

RE and Energy Transition

Where We Are Now

National Renewable Energy Program 2020 -2040

RE and Energy Transition

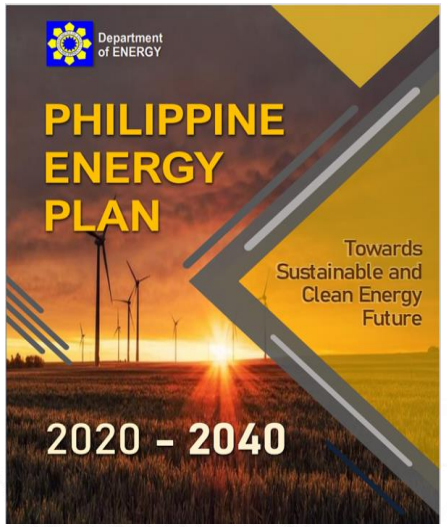
RE and Energy Transition

SUSTAINABLE DEVELOPMENT GOALS (SDG)

SDG 7 – Clean and Affordable Energy

NATIONALLY DETERMINED CONTRIBUTION (NDC)

75% Reduction in Economy-Wide GHG Emission by 2030



PHILIPPINE ENERGY PLAN (PEP)

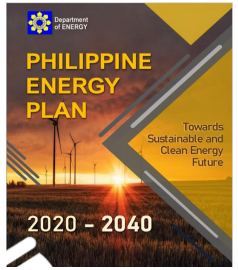
Towards a Sustainable and Clean Energy Future

Images: SDG – https://international-partnerships.ec.europa.eu/policies/sustainable-development-goals_en
NDC - https://icleiseas.org/index.php/2021/07/23/evaluating-the-philippine-nationally-determined-contribution-ndc-in-2021/

Philippines: Forefront of RE Development

Republic Act (RA) No. 7638 or the Department of Energy Act of 1992

Develop and update Philippine energy programs which shall provide for integrated and comprehensive exploration, development, utilization, distribution and conservation of energy resources, with ***preferential bias for environment-friendly, indigenous, and low-cost sources of energy***

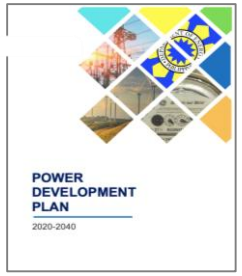


PEP, 2020-2040

Transformational plan to ***bring in more of the clean energy fuels and technologies***

RA No. 9136 of the Electric Power Industry Reform Act of 2001

Promote the utilization of ***indigenous, and new and RE*** resources in power generation to reduce dependence on imported energy

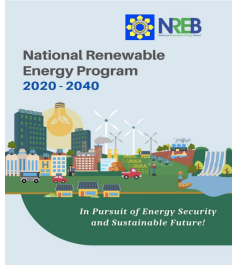


Power Development Plan (PDP), 2020-2040

Adopted the national RE power generation mix targets in line with the commitment towards a cleaner energy transition

RA No. 9513 or the Renewable Act of 2008

Accelerate the exploration, development, utilization, and commercialization of RE by institutionalizing the development of national and local capabilities in the use of RE systems, and promoting its efficient and cost-effective commercial application by providing fiscal and non-fiscal incentives



National Renewable Energy Program (NREP), 2020-2040

Embodies the country's long-term RE targets and policy and program mechanisms to achieve the targets

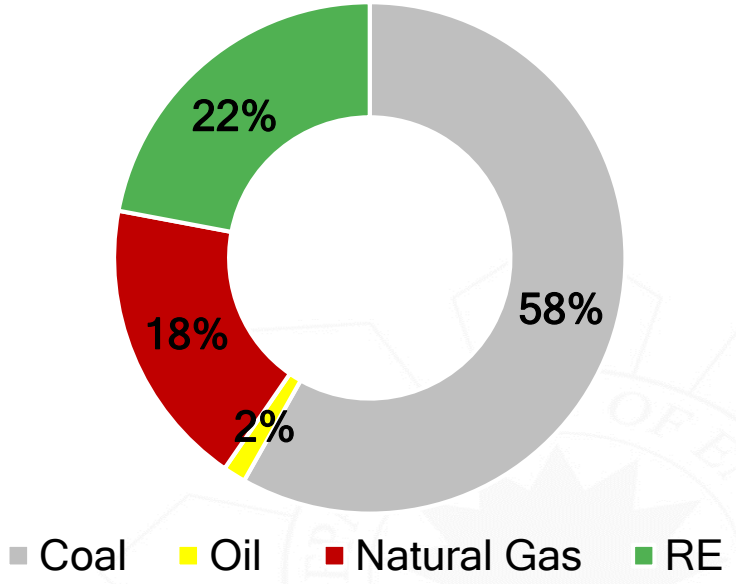
Where We Are Now

Installed Capacity and Gross Generation

Installed Capacity - 26,286 MW

Coal	44%
Oil	14%
Natural Gas	13%
RE	29%

Gross Generation - 106,115 GWh

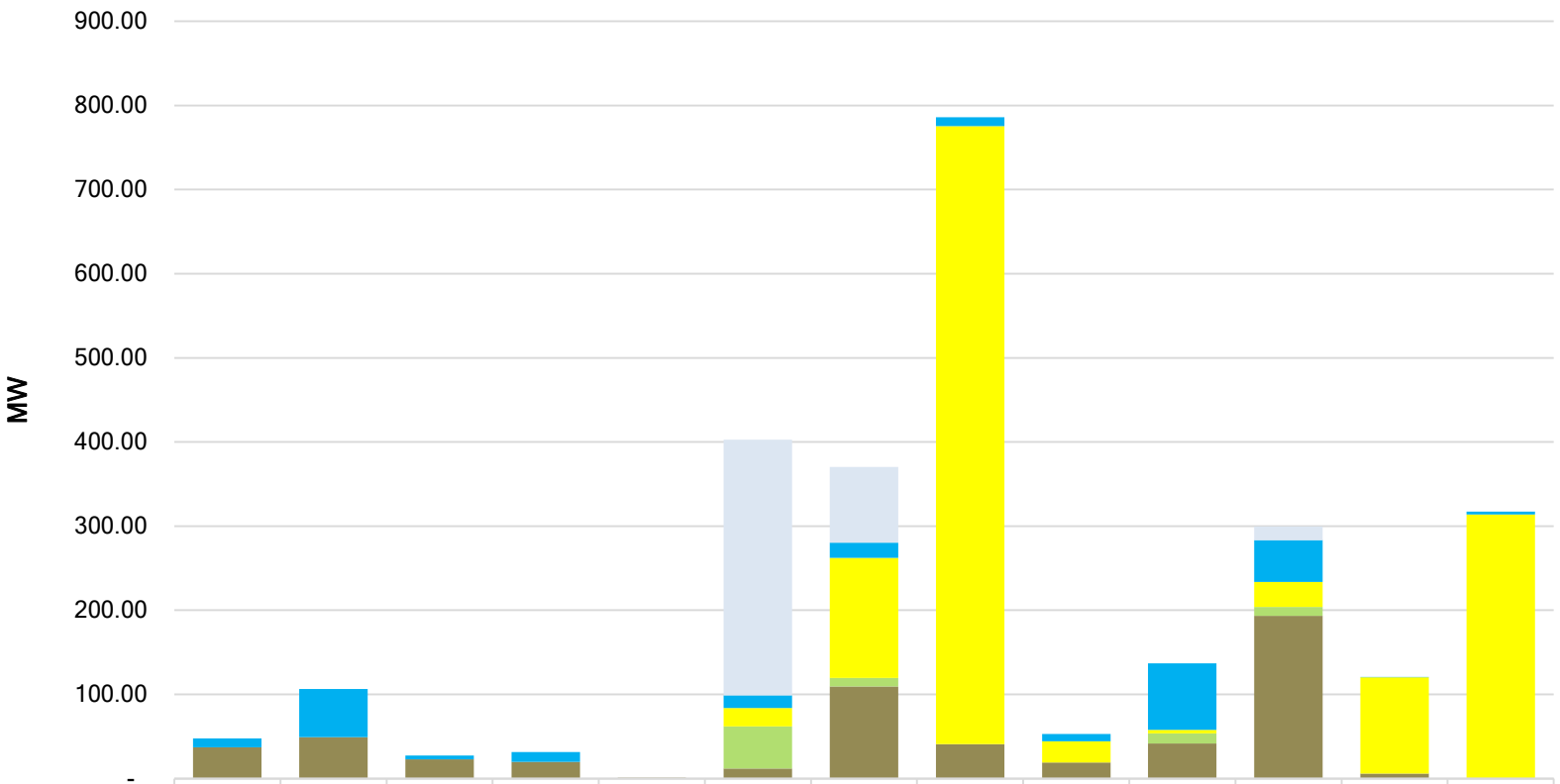


In 2021, RE comprised 29% of the installed capacity and 22% of the gross power generation of the country.

RE Installed Capacity and Gross Generation

Installed Capacity - 7,914 MW (29%)		Gross Generation - 23,771 GWh (22%)
7%	Geothermal	10%
14%	Hydro	9%
2%	Biomass	1%
5%	Solar	1%
2%	Wind	1%

RE Capacity Addition and Highlights, 2009-2021



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Wind	-	-	-	-	-	303.90	90.00				16.00		
Hydropower	10.40	57.30	4.20	11.80		14.78	17.96	10.53	8.50	78.92	49.79	0.30	3.46
Solar	-	-	-	-	-	22.00	142.87	734.72	25.20	4.20	29.55	114.27	313.71
Geothermal	-	-	-	-	-	50.00	10.00			12.00	10.50		
Biomass	37.19	49.30	23.00	19.81	0.88	12.00	109.50	40.80	19.12	41.74	193.57	6.00	

2,699.79 MW
of additional RE Installations since the effectivity of RE Act in 2009

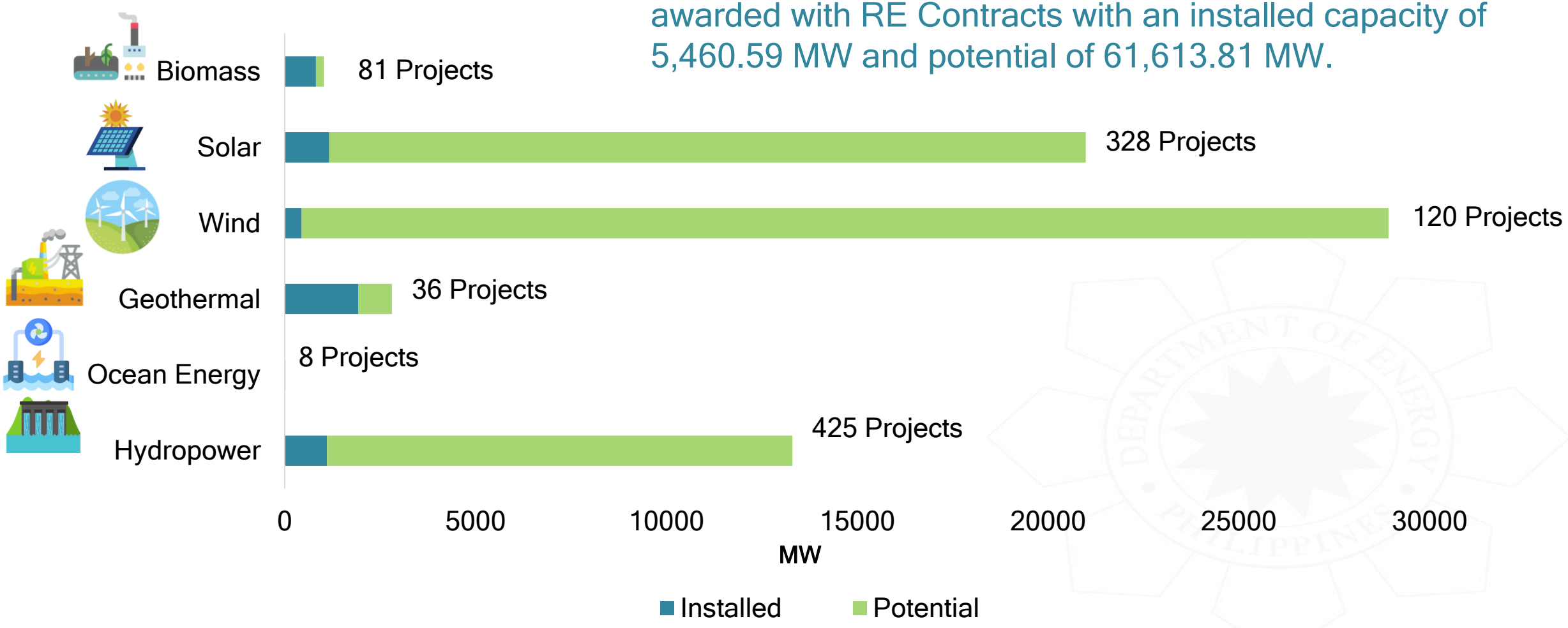
PhP 262.02 B
estimated cost of investments

184,055
estimated Green Jobs Created

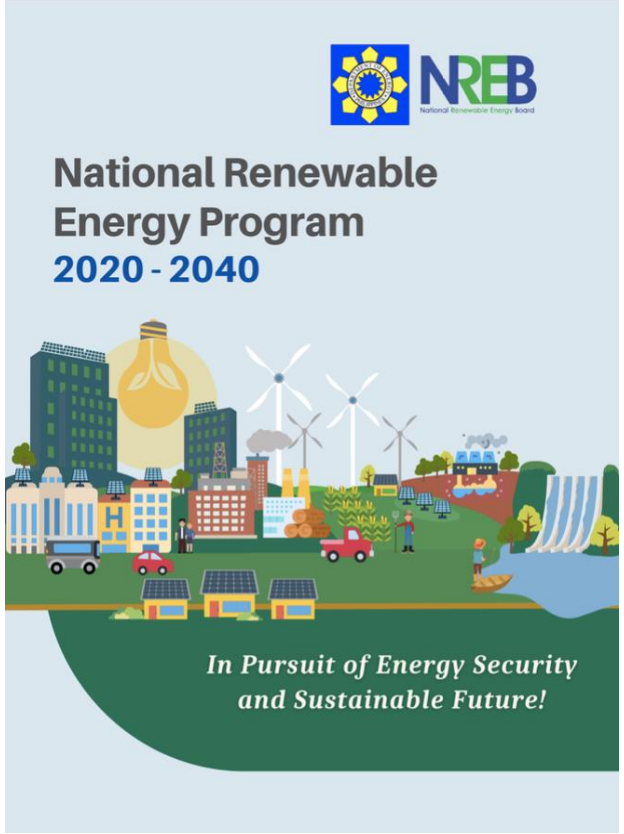
25.973 Million tons
estimated GHG Emission Reduction

Awarded RE Contracts

As of 30 June 2022, a total of 998 projects were awarded with RE Contracts with an installed capacity of 5,460.59 MW and potential of 61,613.81 MW.



National Renewable Energy Program 2020-2040



National Renewable Energy Program (NREP)

NREP sets a target of at least
35% RE Share
in the power generation mix by 2030

NREP aspires to increase the
RE Share to 50%
by 2040

Overarching Goals

Energy Security

Accelerate exploration and development of RE resources to achieve energy self-reliance and reduce dependence on fossil fuels

Sustainable Development

- Contribute to the SDG Goals
- Balance economic growth with protection of health and environment

Climate Change Mitigation

Reduce Greenhouse Gas and other harmful emissions

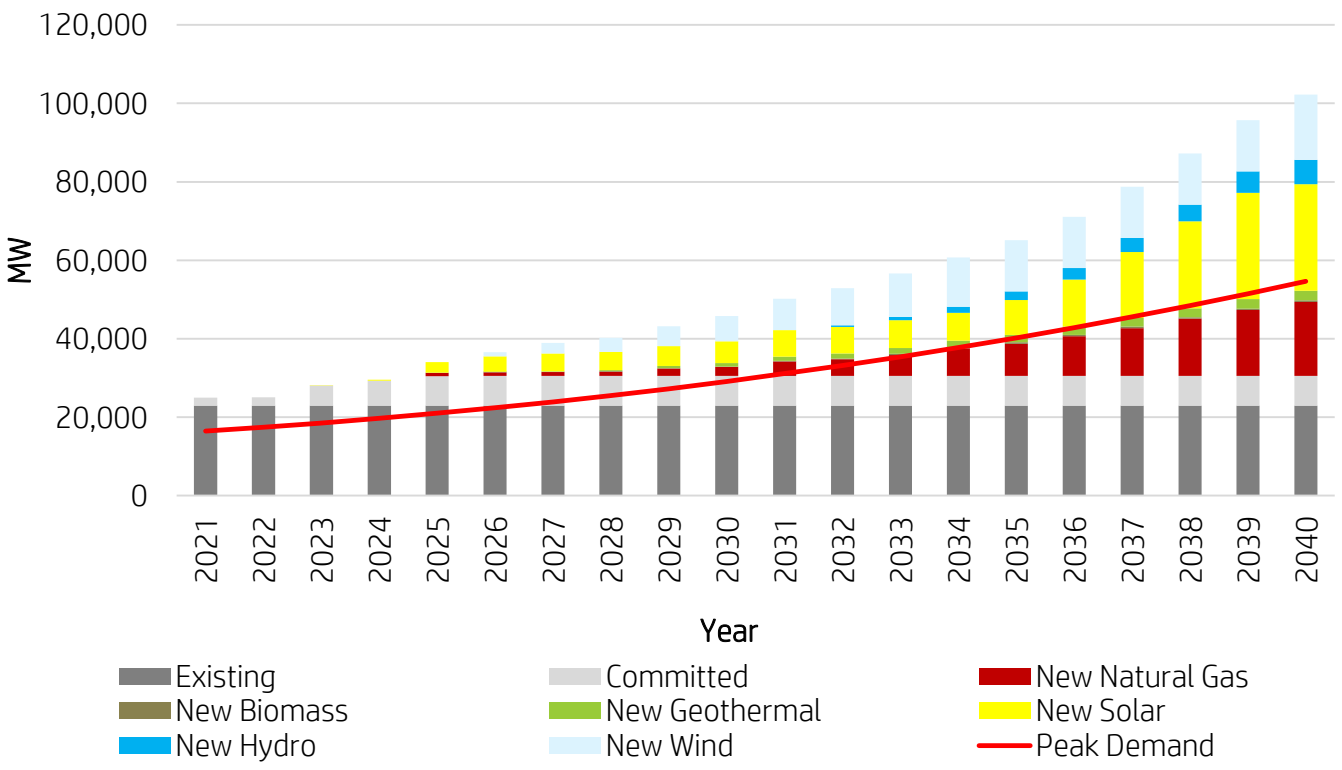
Capability Building

Institutionalize the development of capabilities in the use of RE systems

Inclusive Growth

Catalyze solutions to cross-cutting social issues including poverty, gender, and access to basic needs

RE Outlook, 2021-2040

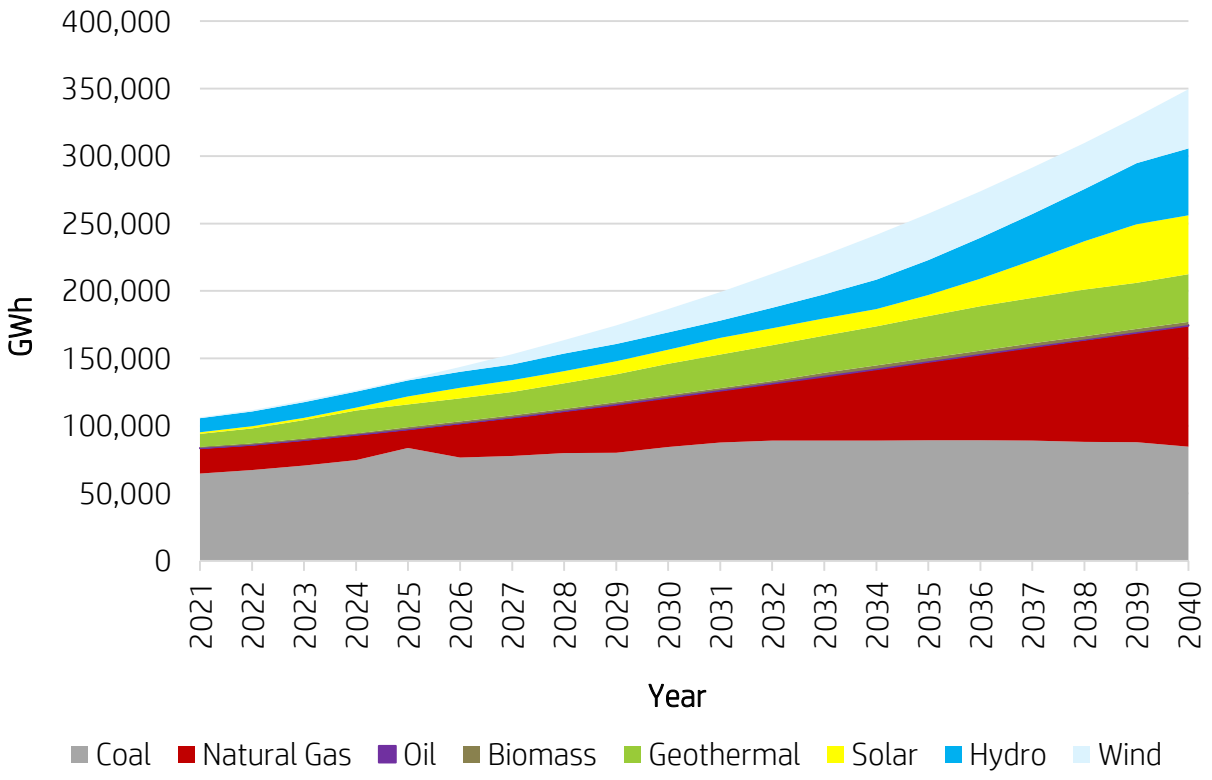


Particulars, in MW	2021	2025	2030	2035	2040
New Natural Gas	0	759	2,259	8,159	18,859
New Biomass	0	120	120	360	364
New Geothermal	0	0	850	1,900	2,500
New Solar	0	2,660	5,585	8,910	27,162
New Hydro	0	0	0	2,200	6,150
New Wind	0	0	6,450	13,050	16,650
Committed Capacity	2,066	7,512	7,592	7,592	7,592
Existing Capacity	22,954	22,954	22,954	22,954	22,954
Peak Demand	16,482	21,019	29,128	40,209	54,655

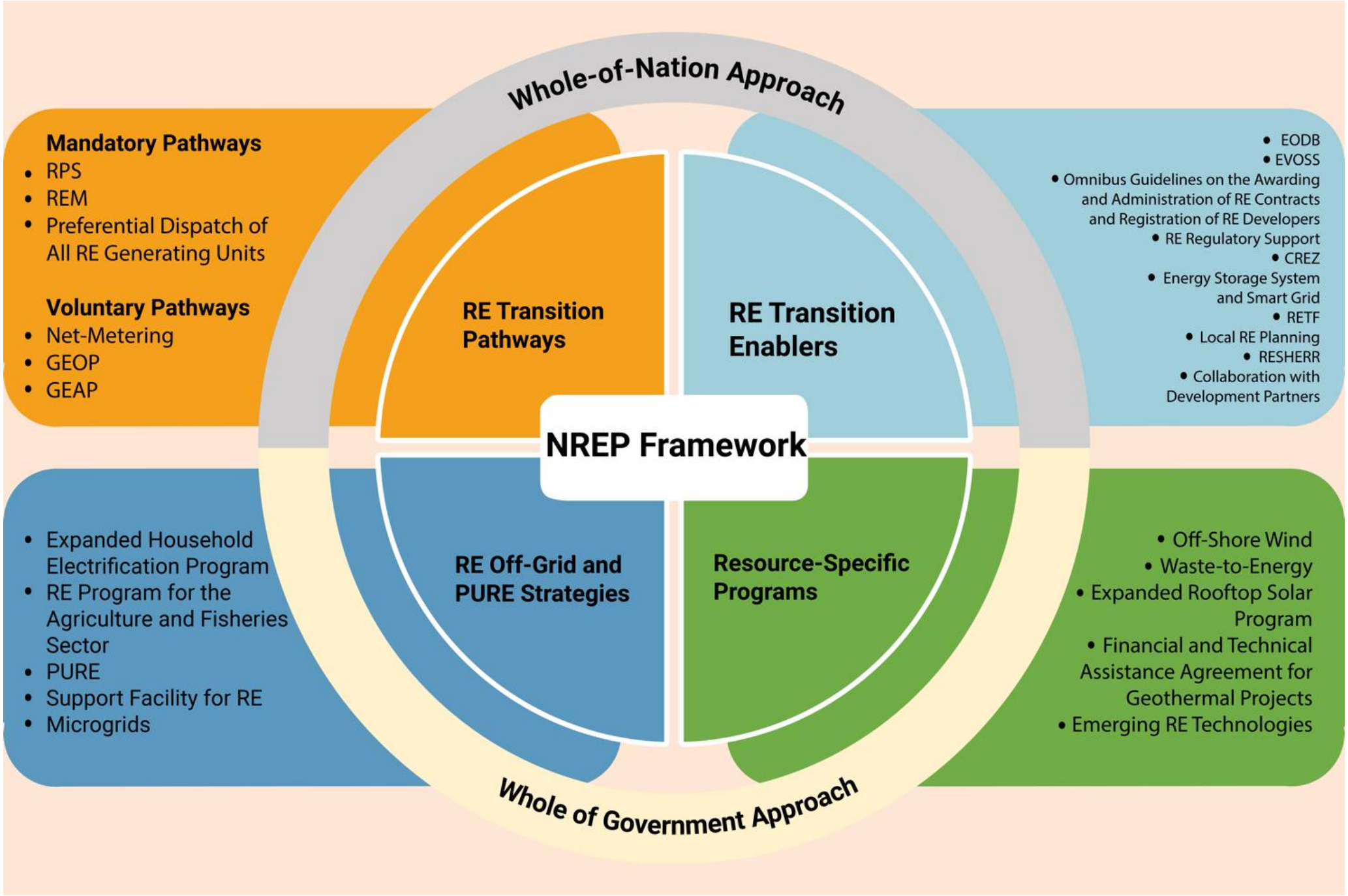
To reach the RE target, a total of 52,826 MW additional RE capacity is needed by 2040, which is almost seven times than the current level at 7,914 MW.

RE Outlook, 2021-2040

Plant Type	2030		2040	
	Power Generation in Gwh	Percent Share	Power Generation in Gwh	Percent Share
Coal	84,306	45	84,491	24
Oil-based	308	0	365	0
Natural Gas	36,618	20	89,866	26
Renewable Energy	**65,316**	**35**	**174,783**	**50**
Biomass	1,455	1	2,353	1
Geothermal	23,293	12	35,321	10
Solar	10,436	6	43,686	12
Hydro	12,884	7	49,697	14
Wind	17,250	9	43,726	13
Total	**186,547**	**100**	**349,505**	**100**



The resulting power generation mix will reach the 35% and 50% RE share targets by 2030 and 2040, respectively.


Whole-of-Nation Approach
Mandatory Pathways
• RPS
• REM
• Preferential Dispatch of All RE Generating Units
Voluntary Pathways
• Net-Metering
• GEOP
• GEAP
RE Transition Pathways
RE Transition Enablers
• EODB
• EVOSS
• Omnibus Guidelines on the Awarding and Administration of RE Contracts and Registration of RE Developers
• RE Regulatory Support
• CREZ
• Energy Storage System and Smart Grid
• RETF
• Local RE Planning
• RESHERR
• Collaboration with Development Partners
NREP Framework
• Expanded Household Electrification Program
• RE Program for the Agriculture and Fisheries Sector
• PURE
• Support Facility for RE
• Microgrids
RE Off-Grid and PURE Strategies
Resource-Specific Programs
• Off-Shore Wind
• Waste-to-Energy
• Expanded Rooftop Solar Program
• Financial and Technical Assistance Agreement for Geothermal Projects
• Emerging RE Technologies
Whole of Government Approach

Major RE Policies and Programs

1 RENEWABLE PORTFOLIO STANDARDS (RPS) - GRID AND OFF-GRID

Requires all load-serving entitites to source or produce a specified portion of their supply from eligible RE facilities

2 RE MARKET (REM)

Serves as the venue for the transparent and fair trading of RE Certificates

3 PREFERENTIAL DISPATCH OF RE

All RE generating units are given preference in the Wholesale Electricity Spot Market dispatch schedule to ensure its maximum output injection in the grid.

4 ENHANCED NET-METERING PROGRAM

Allows end-users to generate electricity from RE-based systems up to 100 kW for own use and sell their excess to the grid

5 GREEN ENERGY OPTION PROGRAM (GEOP)

Provides end-users the option to choose RE resources as their source of energy

6 GREEN ENERGY AUCTION PROGRAM (GEAP)

Intends to provide additional market for RE through a competitive electronic bidding of RE capacities

7 RE TRUST FUND

Pursuant to Section 28 of the RE Act, the RETF was established to promote the development and greater utilization of RE

8 OMNIBUS GUIDELINES FOR RE CONTRACTS

Aims to harmonize and enhance existing guidelines governing the application and awarding of RE Contracts

9 PRODUCTIVE USES OF RE (PURE)

Involve the utilization of RE for activities that enhance income and livelihood, and deliver social services, particularly in rural and off-grid areas.

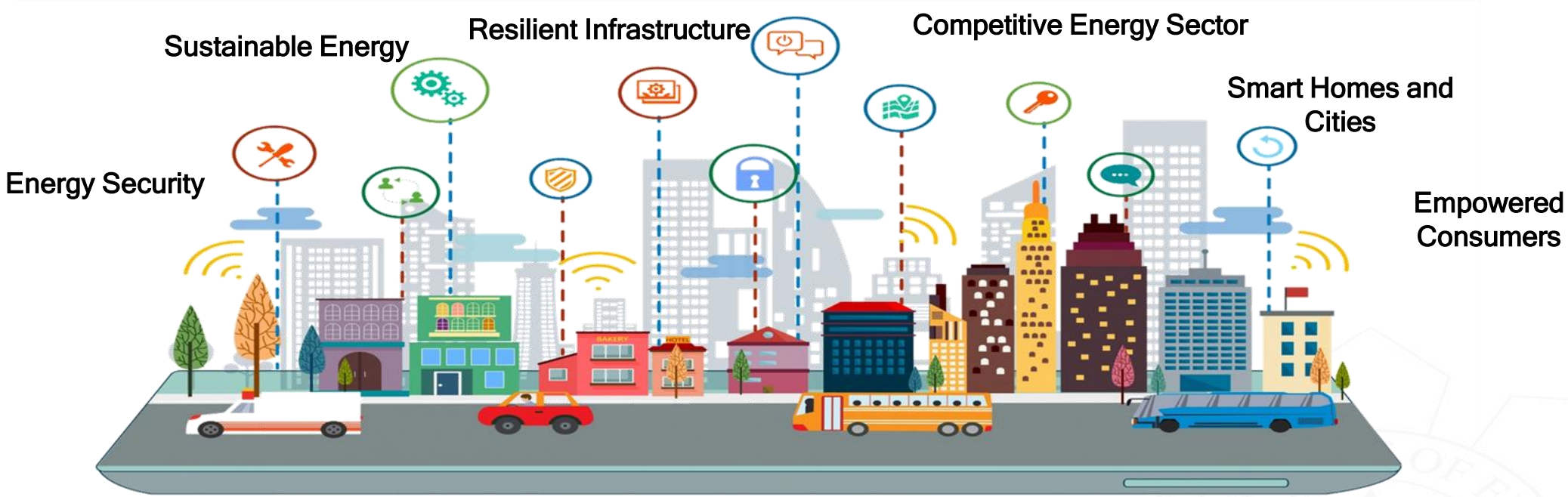
10 MICROGRIDS

Provide a competitive environment for different kinds of energy sources while prioritizing low-cost, indigenous, environment-friendly, and renewable energy

11 RE RESOURCE DEVELOPMENT

Geothermal Energy, Offshore Wind, Waste-to-Energy, Ocean and Tidal Energy, Expanded Rooftop Solar Program

Where We Are Headed …



Renewable Energy

35% of power generation mix by 2030; and 50% by 2040

+

Energy Efficiency and Conservation

5% energy savings on oil products and electricity by 2040

+

Emerging and Innovative Technologies

10% EV penetration rate in road transport by 2040; Exploring new and efficient technologies

+

Information and Communications Technology

Adopting advanced and interoperable ICT in the energy chain

+

Energy Resiliency

Resilient and climate-proof energy infrastructure

https://all-free-download.com/free-vector/download/smart-city-poster-buildings-internet-interface-icons-decor_6835742.html

Thank You

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