Towards a Sustainable and Clean Energy Future:

Energy Transition and the PEP 2020-2040

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Constituency Meetings and Transparency Talks (T-Talks)

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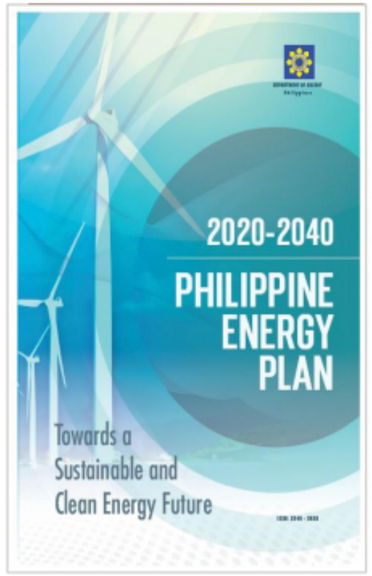
PHILIPPINE ENERGY PLAN 2020-2040 TARGETS

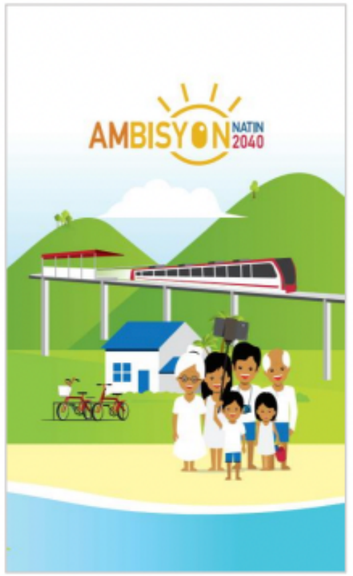
"Sustainable Path Towards Clean Energy"



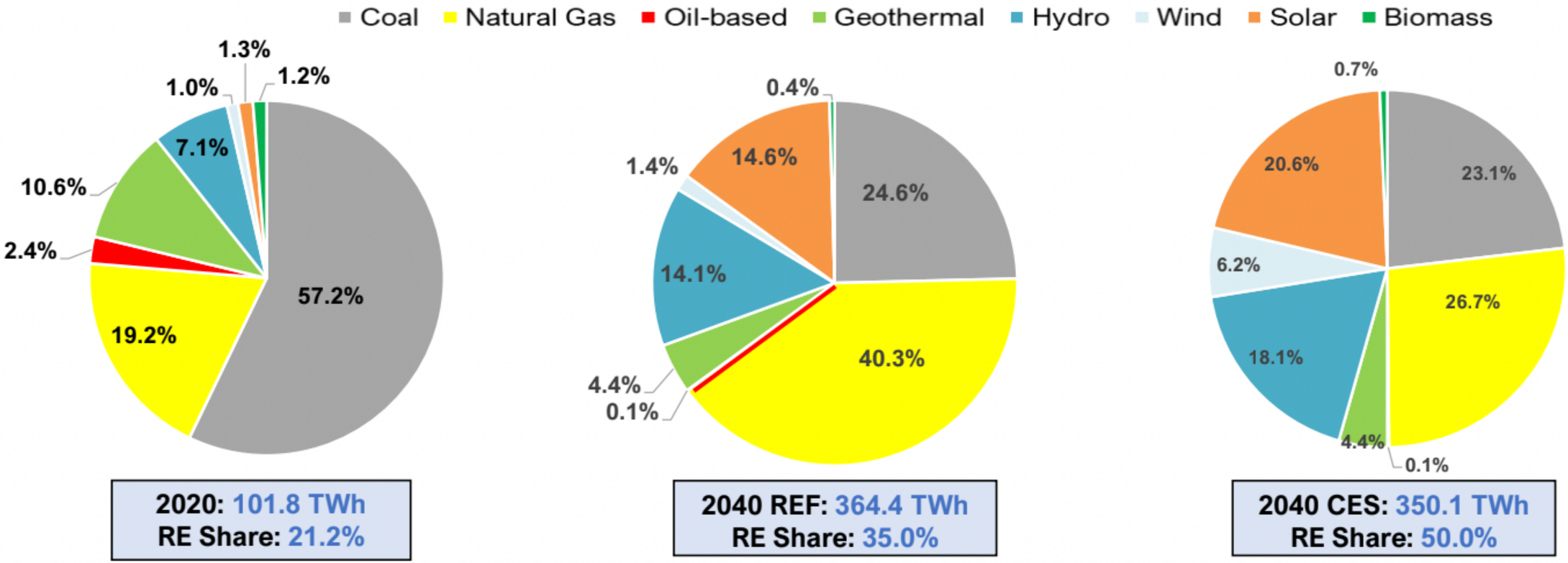
Reference Scenario
+ RE
+ EE and C
+ Other Energy Technologies
+ ICT
+ Resiliency

Clean Energy Scenario

Energy Security
Sustainable Energy
Resilient Infrastructure
Competitive Energy Sector
Smart Homes and Cities
Empowered Consumers



POWER GENERATION, BY FUEL



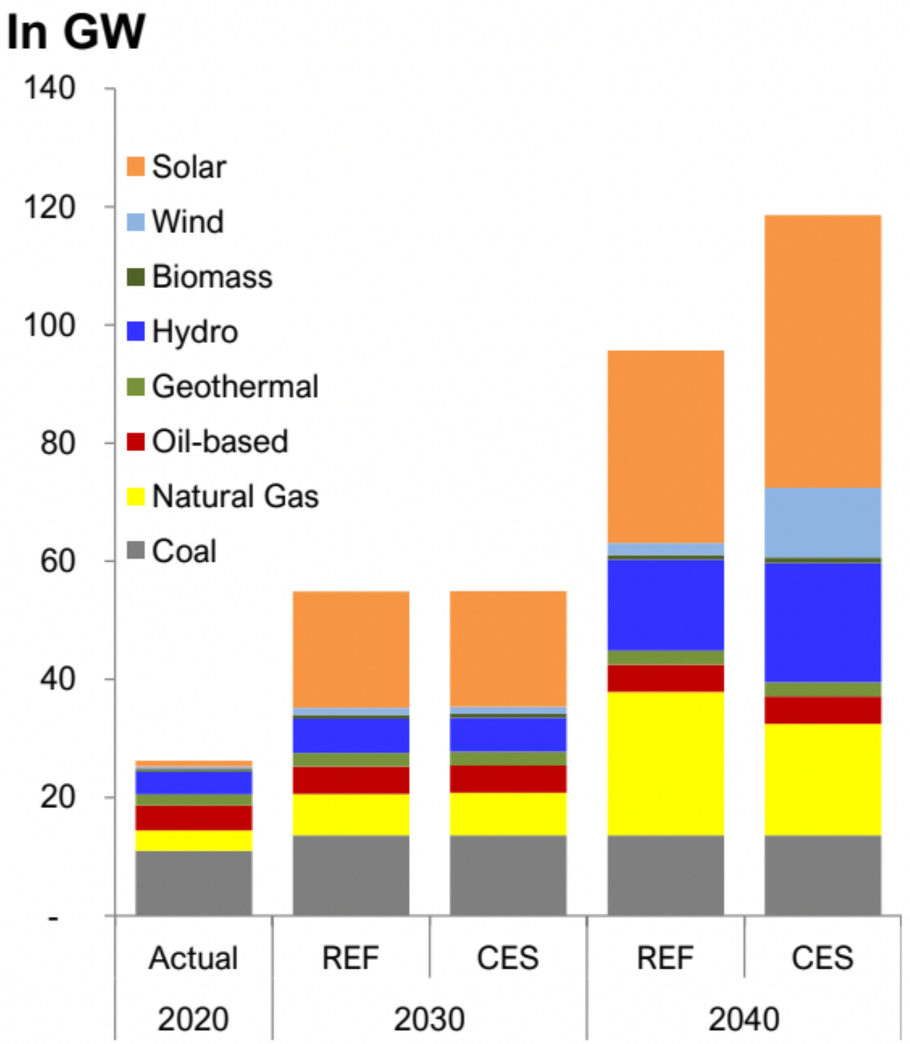
2020: 101.8 TWh
RE Share: 21.2%

2040 REF: 364.4 TWh
RE Share: 35.0%

2040 CES: 350.1 TWh
RE Share: 50.0%

Fuel Type (TWh)	2020		2040				AAGR 2020-2040	
	Actual	% Shares	REF	% Shares	CES	% Shares	REF	CES
Coal	58.2	57.2	89.7	24.6	80.8	23.1	2.2%	1.7%
Natural Gas	19.5	19.2	146.9	40.3	93.2	26.6	10.6%	8.1%
Oil-based	2.5	2.4	0.3	0.1	0.5	0.1	-10.4%	-7.5%
Renewable	**21.6**	**21.2**	**127.5**	**35.0**	**175.5**	**50.1**	**9.3%**	**11.0%**
Total	**101.8**	**100.0**	**364.4**	**100.0**	**350.1**	**100.0**	**6.6%**	**6.4%**

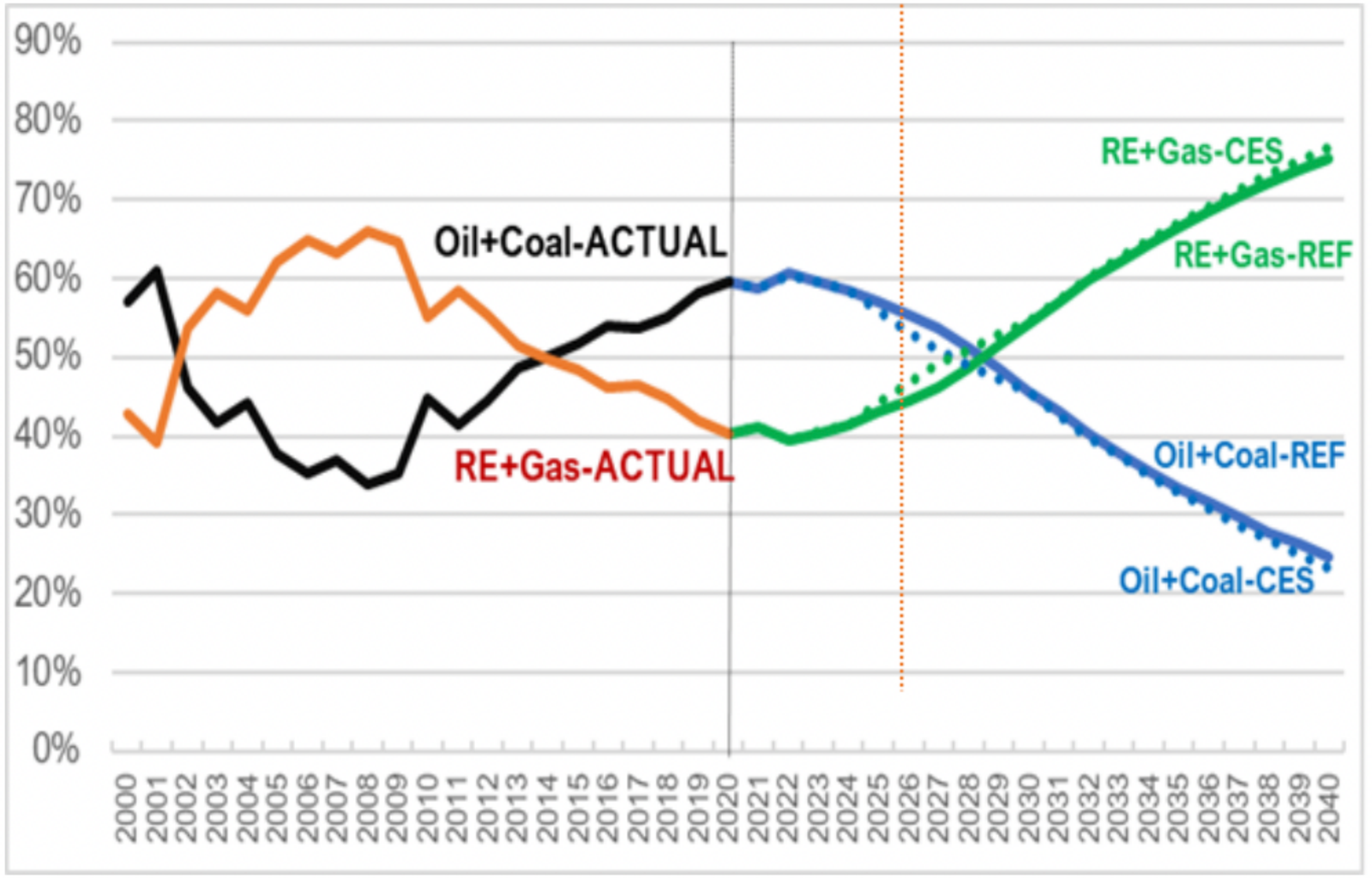
INSTALLED GENERATING CAPACITY



Capacities by Source: 2020, 2030 and 2040

Fuel Type (MW)	2020		2040				Total Additions by 2040	
	Actual	% Shares	REF	% Shares	CES	% Shares	REF	CES
Coal	10,944	41.7	13,585	14.2	13,585	11.5	2,641	2,641
Natural Gas	3,453	13.2	24,263	25.4	18,883	15.9	20,810	15,430
Oil-based	4,237	16.1	4,618	4.8	4,618	3.9	381	381
Renewable	**7,617**	**29.0**	**53,205**	**55.6**	**81,485**	**68.7**	**45,588**	**73,868**
Geothermal	*1,928*	*7.3*	*2,408*	*2.5*	*2,408*	*2.0*	*480*	*480*
Hydro	*3,779*	*14.4*	*15,426*	*16.1*	*20,176*	*17.0*	*11,647*	*16,397*
Wind	*443*	*1.7*	*2,027*	*2.1*	*11,830*	*10.0*	*1,584*	*11,387*
Solar	*1,019*	*3.9*	*32,590*	*34.1*	*46,137*	*38.9*	*31,571*	*45,118*
Biomass	*447*	*1.7*	*753*	*0.8*	*933*	*0.8*	*306*	*486*
TOTAL	**26,250**	**100.0**	**95,670**	**100.0**	**118,570**	**100.0**	**69,420**	**92,320**

ENERGY TRANSITION:
CLEAN FUELS AND TECHNOLOGIES DOMINATING THE POWER MIX



RENEWABLE ENERGY PLANS AND PROGRAMS

Energy Security

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

Sustainable Development

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

Climate Change Mitigation

Reduce Greenhouse Gas and other harmful emissions.

Capacity 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.

National Renewable Energy Program (NREP) 2020 – 2040

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

NREP works to drive
RE share to greater than 50% by 2040,
dominating the mix

RENEWABLE ENERGY PLANS AND PROGRAMS

1 RENEWABLE PORTFOLIO STANDARDS

Requires electricity suppliers to source an agreed portion of their supply from eligible RE facilities

2 GREEN ENERGY AUCTION PROGRAM

Sets the framework for the facilitation of immediate and timely investment for new and additional RE capacities to ensure provision of adequate supply under a competitive process

3 GREEN ENERGY OPTION PROGRAM

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

4 RE MARKET RULES

Establishes the market for the trading of RE Certificates between and among trade participants

5 OPEN AND COMPETITIVE SELECTION PROCESS

Facilitates project development by offering well-characterized RE sites to project developers

6 RENEWABLE ENERGY TRUST FUND

To finance research, development, demonstration, and promotion of the widespread and productive use of RE systems

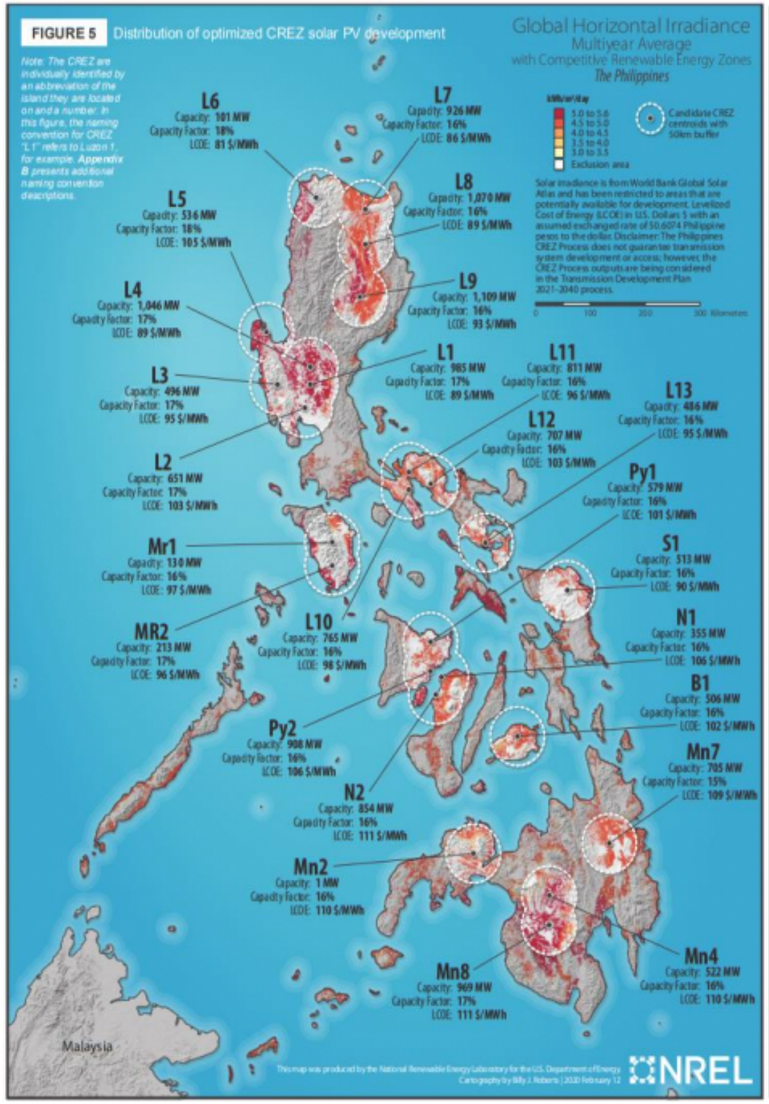
7 NET-METERING PROGRAM

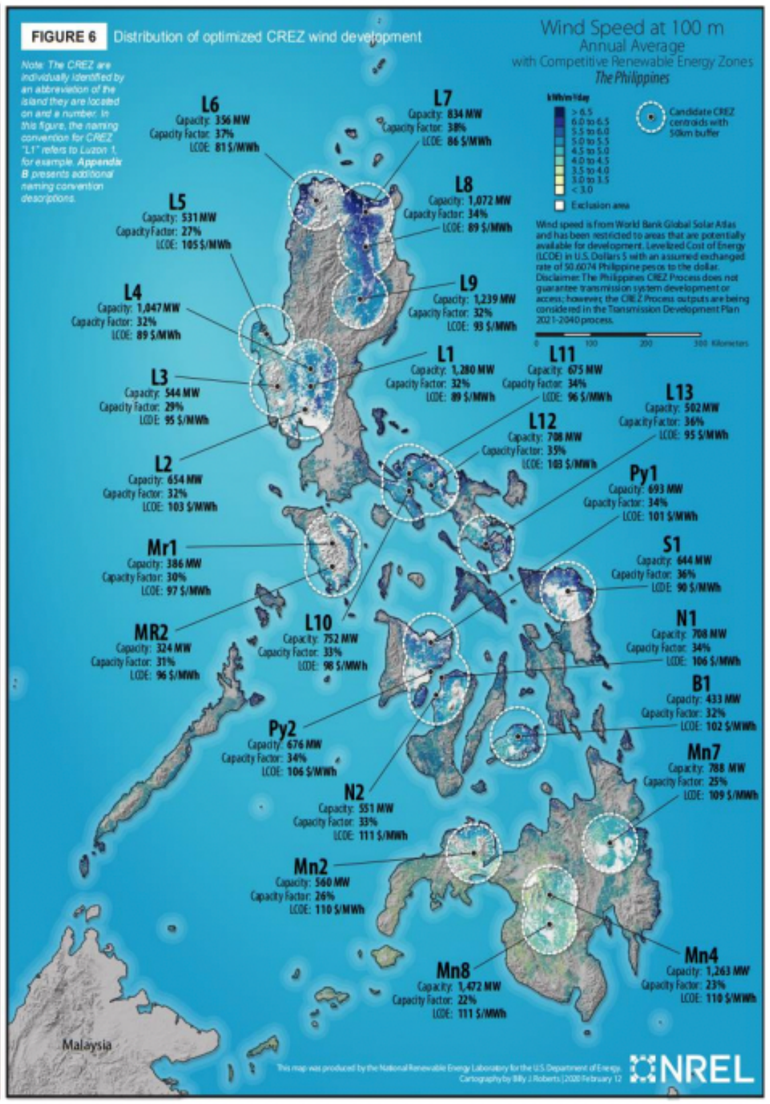
End-users can install up to 100-kW RE systems to reduce their electricity bills and sell the surplus to the grid

8 COMPETITIVE RE ZONES

Covers the upgrade and expansion of transmission facilities through policy initiatives and activities that shall enable the optimal use of RE in the country

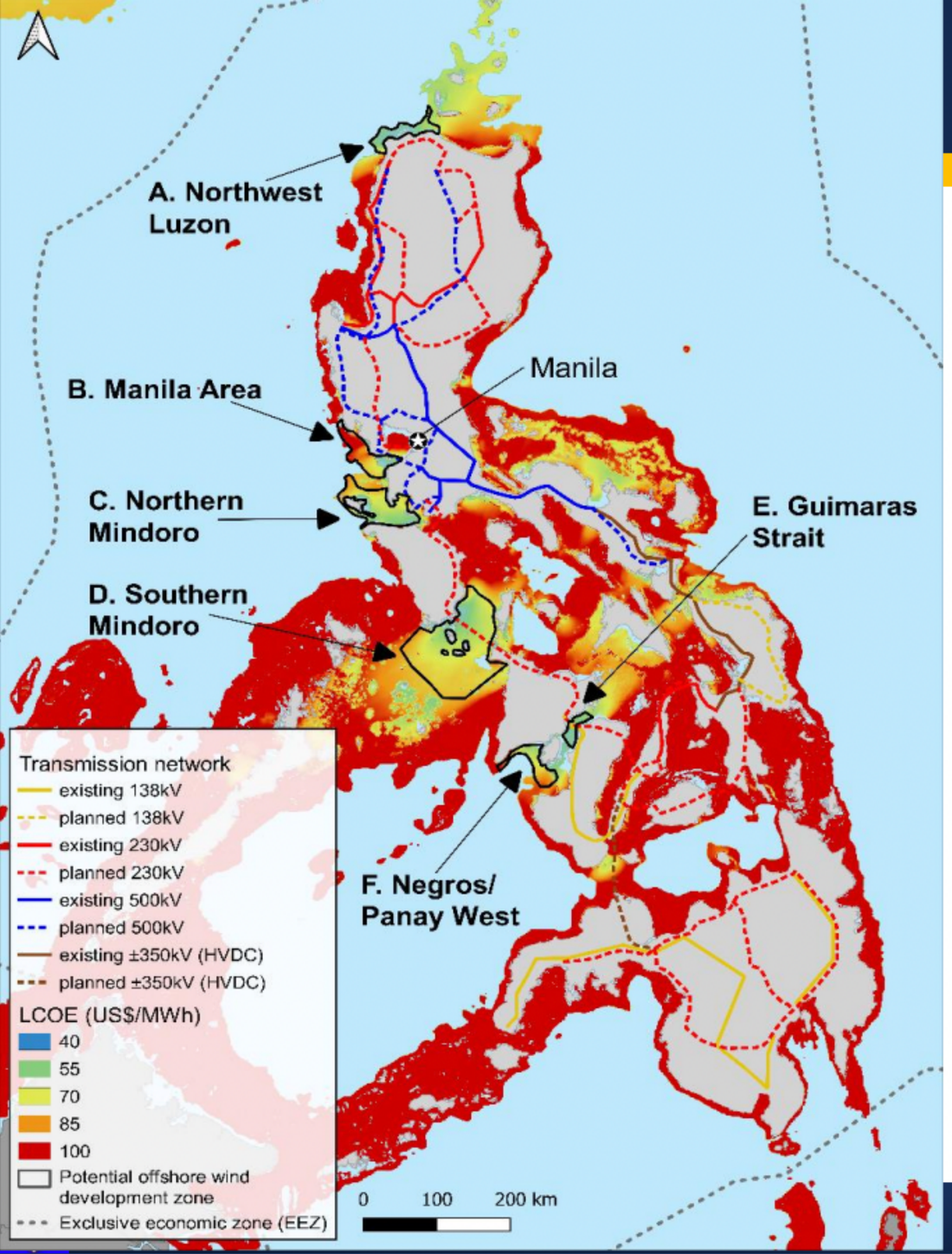
CREZ SOLAR PV AND WIND POTENTIAL





- **DOE** initiated the Competitive Renewable Energy Zones (CREZ) Project in 2018
- Identified **25 Strategic Areas** with high concentration of **solar and wind resources** throughout the country
- **15,944 MW** Solar and **18,692 MW** Wind potential capacities

OFFSHORE WIND ENERGY



Total of 178 GW of OSW potential

Offshore wind in the Philippines

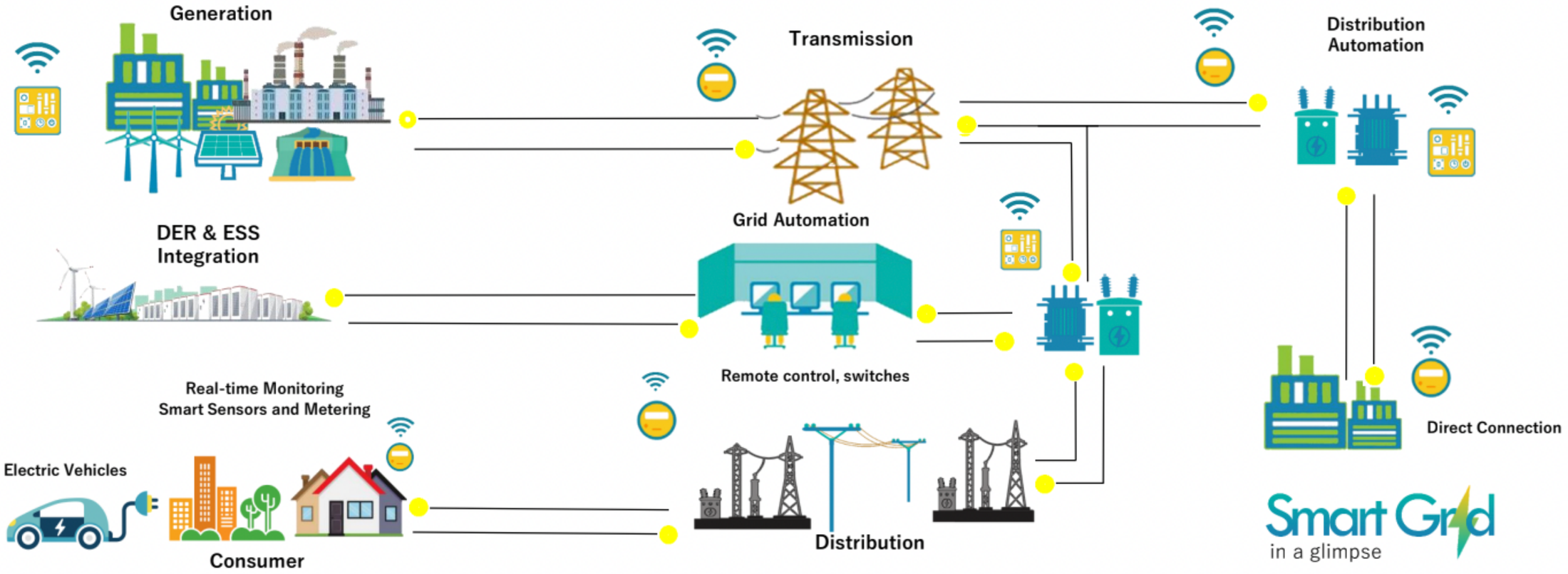
2022:
Set the vision
- 2050 vision
- 2030 and 2040 targets
- Transmission network vision

2022-23:
Evolve the frameworks
- Marine Spatial Plan
- Offshore wind development zones
- Leasing and permitting (including ESIA)
- Auction arrangements
- Capacity building in stakeholders
- Government-industry task force

2022-2028:
Develop and install first projects
- Design
- Permitting
- Auction
- Construction

2025-2035:
Develop the long-term infrastructure
- Transmission, ports
- Supply chain
- Pipeline of offshore wind projects

POWER SECTOR



Smart Grid

The National Smart Grid Policy Framework and Roadmap for Distribution Utilities established in 2020 shall be fully implemented.

Increase Flexiblity in Power Generation

Increasing flexibility in power generation enables the system to synchronously adapt and adjust to dynamic conditions at any given time, resulting to an optimized electricity demand and supply flow.

Interconnection of Major Island Grids

Having an interconnected grid system, which allows optimization of the country's indigenous energy resources and infrastructure, is one of the visions for the Philippines' electric power industry.

Total Electrification

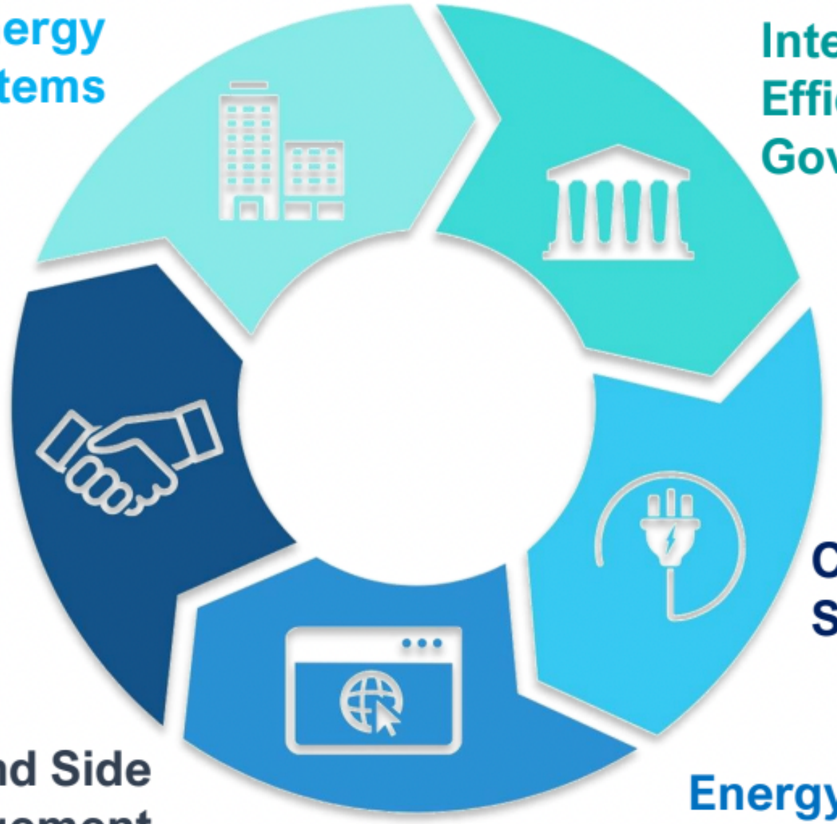
The government shall continually improve its existing electrification strategies, utilize advanced technologies, and adopt innovative solutions to achieve 100% electrification rate in the country.

ENERGY EFFICIENCY & CONSERVATION

Republic Act No. 11285: Energy Efficiency and Conservation Act

Establish cross-sectoral energy performance and rating systems

Integrate and mainstream Energy Efficiency and Conservation at Local Government Units



Cross-sectoral policy development

Collaboration with stakeholders for expanded financing

Create business tool kit for Energy Service Companies

Enhanced Demand Side Management

Energy Database Monitoring System

ALTERNATIVE FUELS & EMERGING TECHNOLOGIES

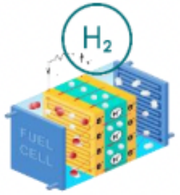
Deployment of Alternative Fuels and Technologies for Transport

- Electric Vehicles (EVs)
- Hybrid Electric Vehicles (HEVs)
- Hydrogen Fuel Cells

Establish Necessary Infrastructure and Regulatory Support

- EV Charging Stations
- Adoption of single EV charging protocol
- R&D on EV parts and components
- Establishment of testing laboratories, service shops, and training modules
- Household / home solar storage batteries

Pursue Other Cleaner Source of Energy and Support Technologies



HYDROGEN

NUCLEAR

ENERGY RESILIENCY

Energy Resiliency Policy

DC 2018-01-0001

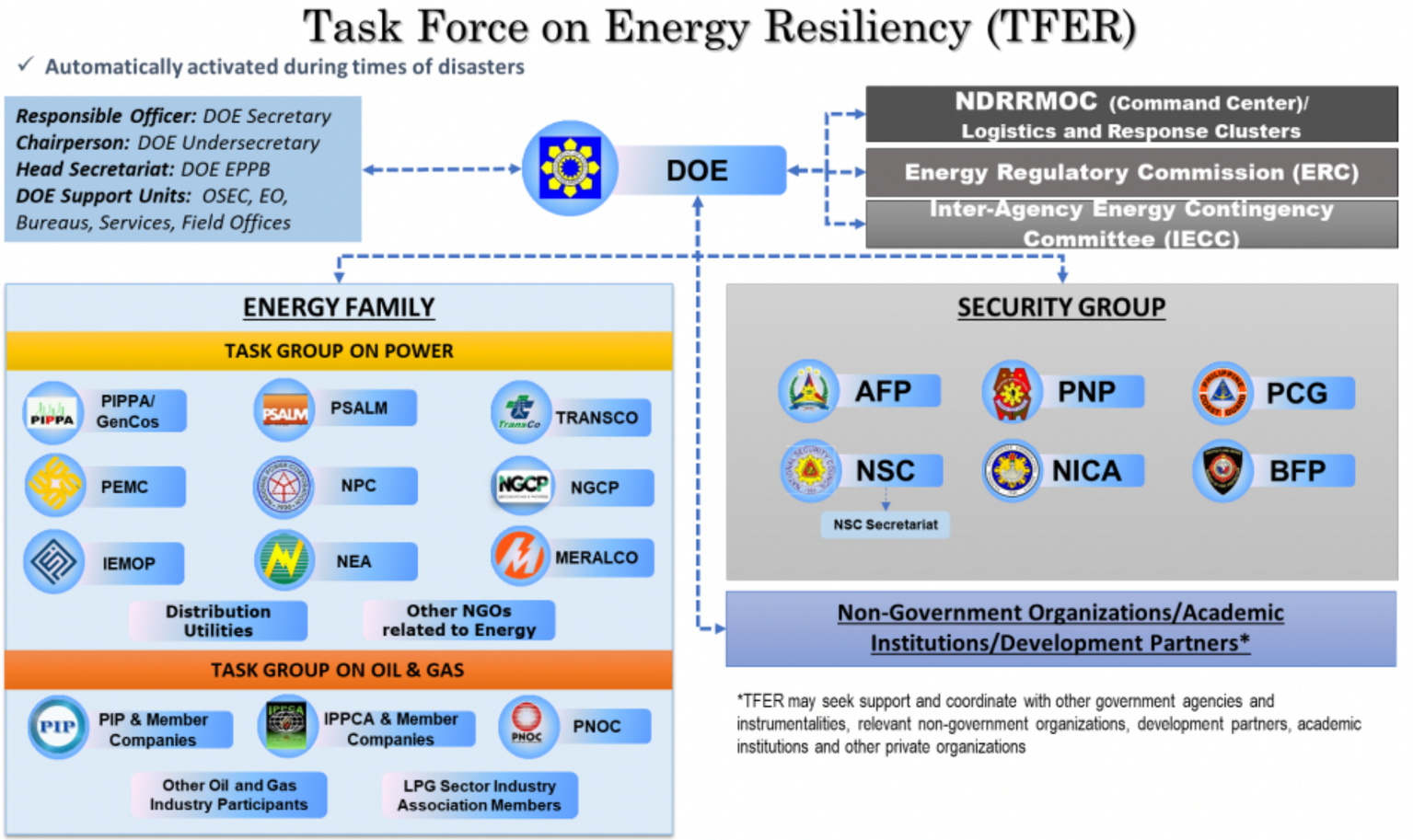
Signed: 17 January 2018

Adoption of Energy Resiliency in the Planning And Programming of the Energy Sector to Mitigate Potential Impacts of Disasters

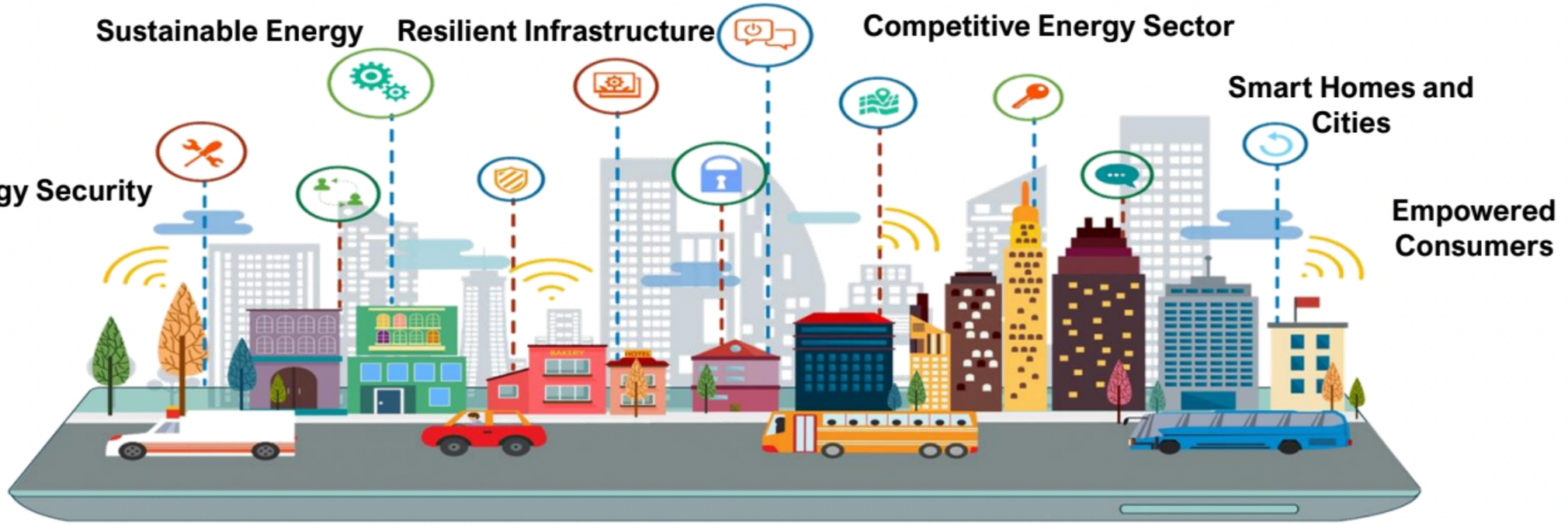
DC 2022-06-0028

Signed: 24 June 2022

Supplementing Department Circular No. DC2018-01-0001 on the Energy Resiliency Planning and Programming of the Energy Sector and on Task Force on Energy Resiliency (TFER) Functions and Structure to Mitigate Impacts of Disasters



FUTURE ENERGY SCENARIO IN CAPSULE



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

Thank You!

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