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EUROPEAN UNION FOR ARMENIA

EU4Climate

Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, Ukraine

EU4Climate helps governments in the six EU Eastern Partner countries Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine to take action against climate change. It supports countries in implementing the Paris Climate Agreement and improving climate policies and legislation. Its ambition is to limit climate change impact on citizens lives and make them more resilient to it. EU4Climate is funded by the European Union and implemented by the United Nations Development Programme.

UNDP

WEBINAR ON DEVELOPING LONG-TERM LOW EMISSION DEVELOPMENT STRATEGIES (LT-LEDS) AND CLIMATE POLICY MAINSTREAMING

EaP | Eastern Partnership

ARMENIA: Past and Ongoing LEDS Actions: Policies and Programs. Developing the National Program on Energy Saving and Renewable Energy for 2021 to 2030

October 19-20 October, 2020
Zoom online platform

R2E2

Renewable Resources & Energy Efficiency Fund

- established in 2005 by RA Government
- an autonomous legal entity, based on voluntary property fees by the founder,
- no membership,
- a non-trade, non-profit organization, termless
- Clear Mission
  - create favorable environment for RE & EE investments,
  - introduction of best practices, roll-out of viable commercial schemes,
  - awareness and capacity building,
  - enabling of favorable policies and regulations

European Bank for Reconstruction and Development

Ministry of Energy and Natural Resources of the RA

Government of the RA

World Bank

ALLIANCE TO SAVE ENERGY
Using less. Doing more.
European Alliance to Save Energy

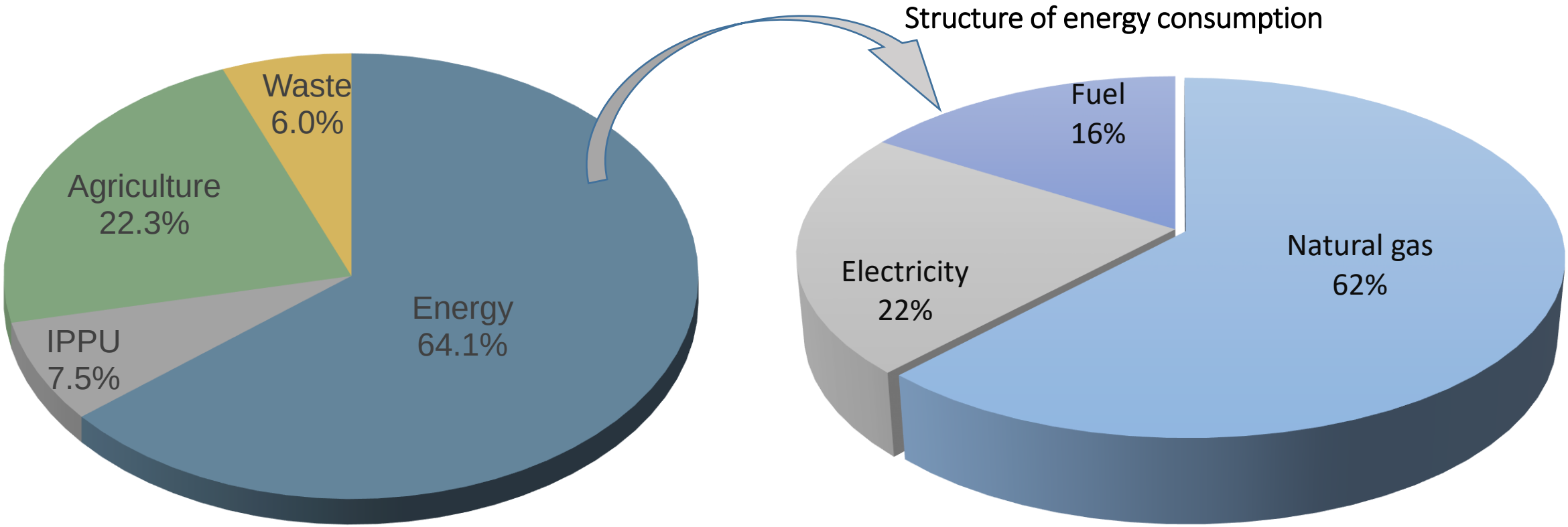
United Nations Development Programme

Public Services Regulatory Commission of the RA

GPOBA
Global Partnership on Output-Based Aid

gef
Global Environment Facility

Armenia's Greenhouse Gas Emissions



GHG emissions by sectors (without Forestry and Other Land Use sub-sector) in 2016, $CO_{2\ eq.}$

RA: Low-carbon development policies for the energy system

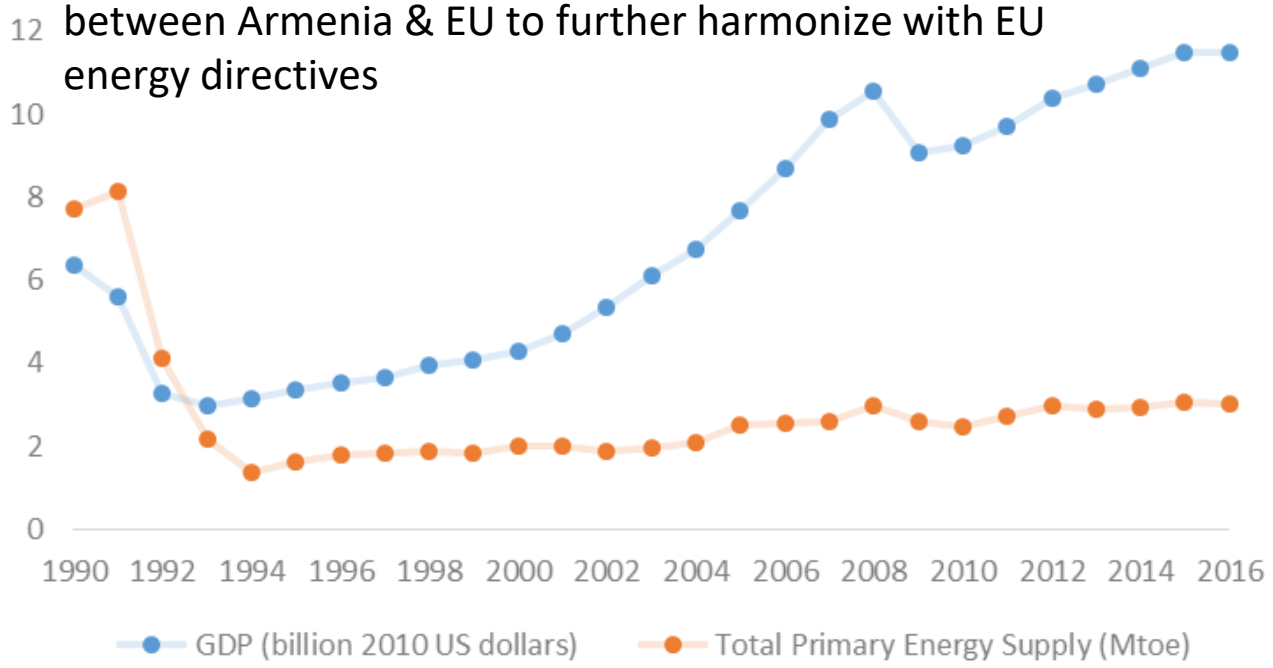
- Energy efficiency promotion
- Renewable energy scale-up
- Replacement of old assets for baseload energy generation
- Upgrade of the transmission and distribution infrastructure
- Market liberalization
- Regional integration
- Technology development

Sustainable Energy Policy Framework in Armenia

Key Accomplishments

Evaluating Progress in Sustainable Energy

- Ambitious **legal-regulatory documents** adopted harmonizing with EU Energy Acquis
  - EE Directive, Energy Performance in Buildings Directive, Eco-Labeling Directive, RE Directive.
  - ***pending enforcement provisions***
- **Institutions** in place with an elaborate legal toolkit to effectively address the policy needs of the sector,
  - ***existing capacities need strengthening***
- Comprehensive and Enhanced Cooperation Agreement between Armenia & EU to further harmonize with EU energy directives



Aggregate EE Assessment SCORECARD

	Energy Efficiency INDICATORS	Score (min-0; Max-5)
A	Indicator 1: National energy efficiency planning	5.0
B	Indicator 2: Energy efficiency entities	5.0
C	Indicator 3: Information provided to consumers about electricity usage	4.0
D	Indicator 4: EE incentives from electricity rate structures	2.2
E	Indicator 5: Incentives & mandates: large consumers	0.6
F	Indicator 6: Incentives & mandates: public sector	2.2
G	Indicator 7: Incentives & mandates: utilities	1.6
H	Indicator 8: Financing mechanisms for energy efficiency	3.1
I	Indicator 9: Minimum energy efficiency performance standards	0.6
J	Indicator 10: Energy labeling systems	3.2
K	Indicator 11: Building energy codes	2.5
L	Indicator 12: Carbon Pricing	4.0
M	Indicator 13: Energy Statistics	5.0
N	EE development tools	3.0
O	Education/capacity development	3.0
P	Public awareness	3.0

Positive Steps & Successes to Date and Remaining Issues

Policy reform initiated (ES&RE Law, ES&RE Program, EPBD, 1st &2nd NEEAP)

More drafting needed, Enforcement lags, institutional capacity insufficient

Standard & norms updated to meet international best practices, ENs/ISOs

Gaps remain, further reform needed | Enforcement lags

Market Studies, Least-cost models indicated large potential for EE/RE/LEDS

Potential largely remained untapped

Large catalogue of successful demo/pilot solutions for scale up

Administrative models & financing mechanisms for replication needed

Credit lines functional for corporate, SME, households and municipal EE

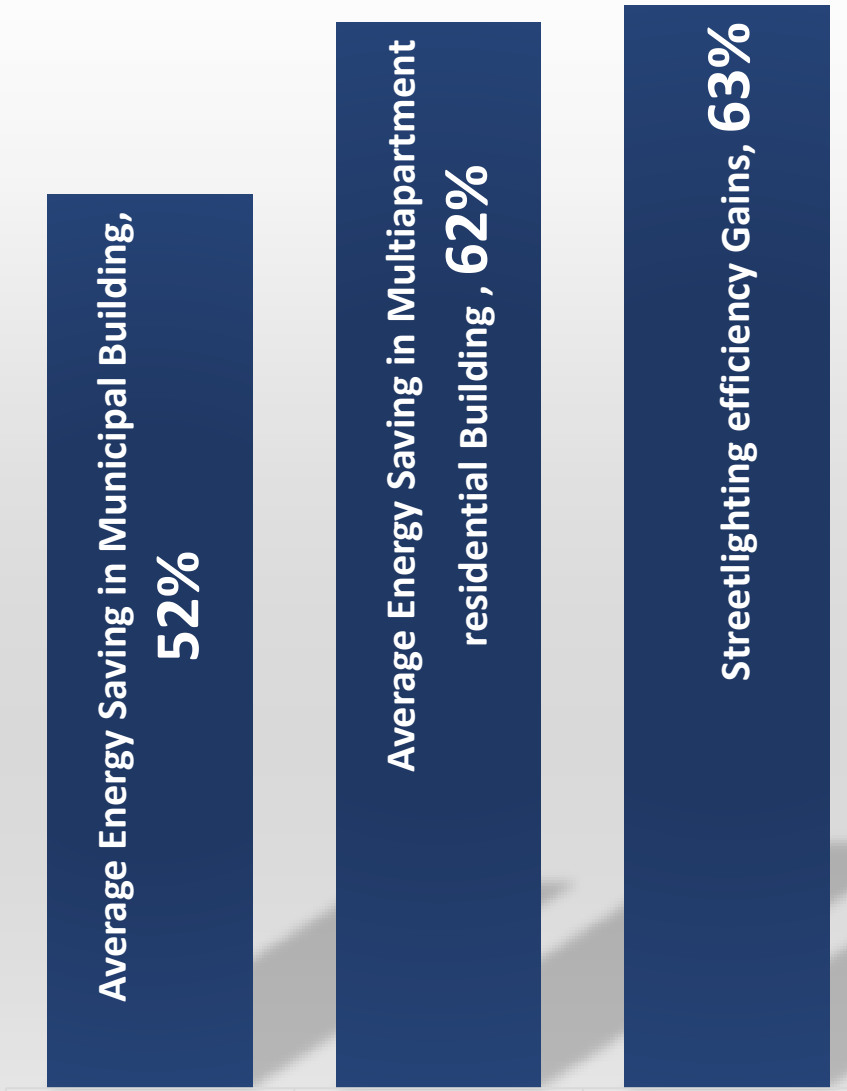
Grant co-financing in nearly-bankable cases | Multi-apartment housing EE underserved

Local authorities slowly taking the lead (CoM/SEAPs/GCAPs/LEAPs)

Municipalities lack skills and resources for energy planning and project development

The public awareness and outreach –never enough!

Typical Energy Saving Results of Pilot Projects



Energy efficiency: 1st & 2nd NEEAPs, 3rd under development

Buildings

Residential: existing building retrofitting

New construction: Regulatory framework

Public sector

Public Buildings

Services: Municipal Street-lighting, etc.

Power & Industry

Power sector: generation (EE & RES), transmission, distribution

Heavy industry/large enterprises

SME

Agriculture

Irrigation,

Aquacultures,

Greenhouses, etc.

Mobility (transport)

Electric transport,

Road infrastructure,

Fuel switching,

Decarbonized mobility

Horizontal measures

policy measures (energy audits, SEAPs, public procurement, codes/standards, BATs, etc.),

grants/subsidies,

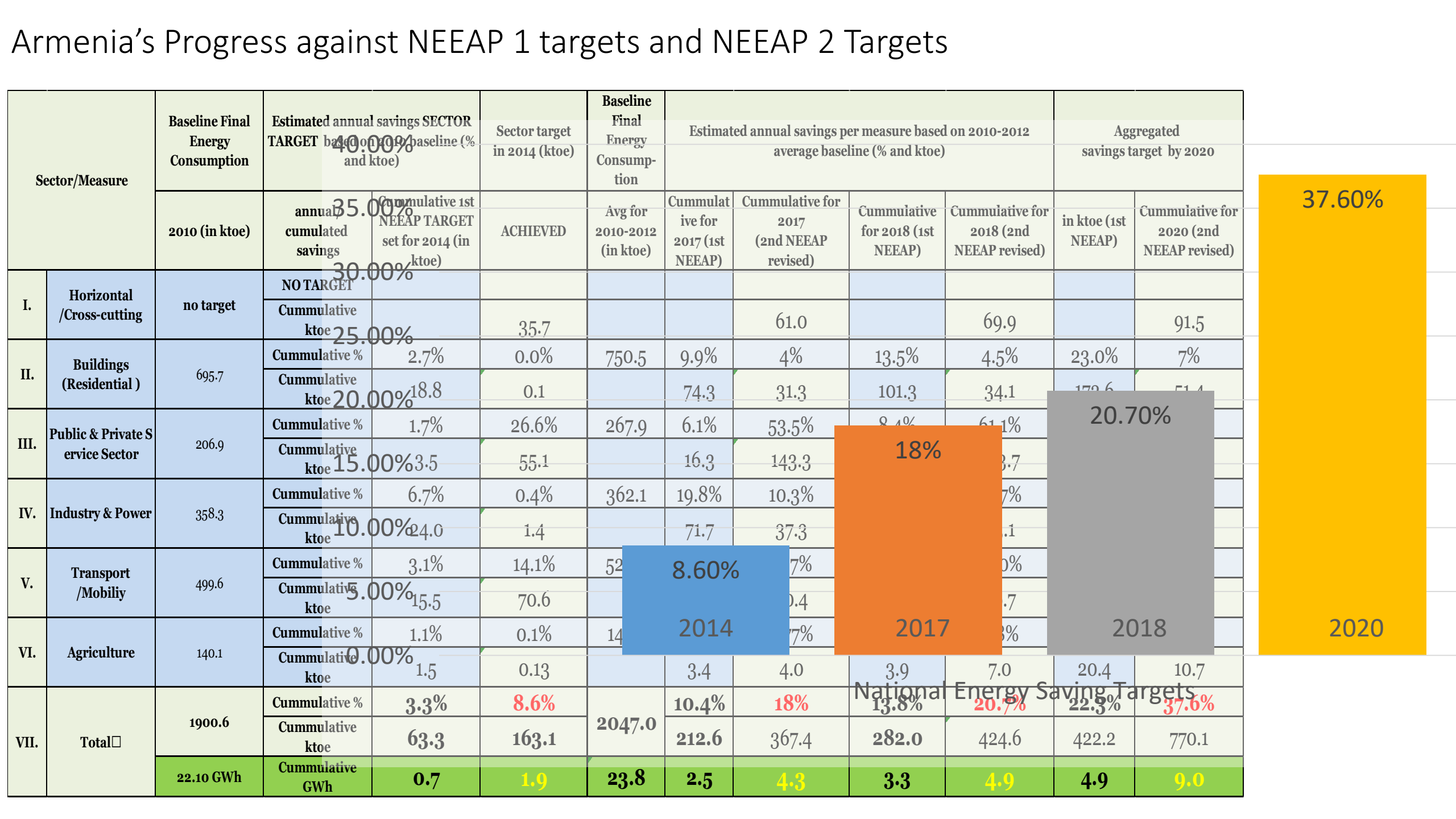
TA (audit templates, EE calculators, guidebooks, sample RFPs/contracts,

ESCO development) and

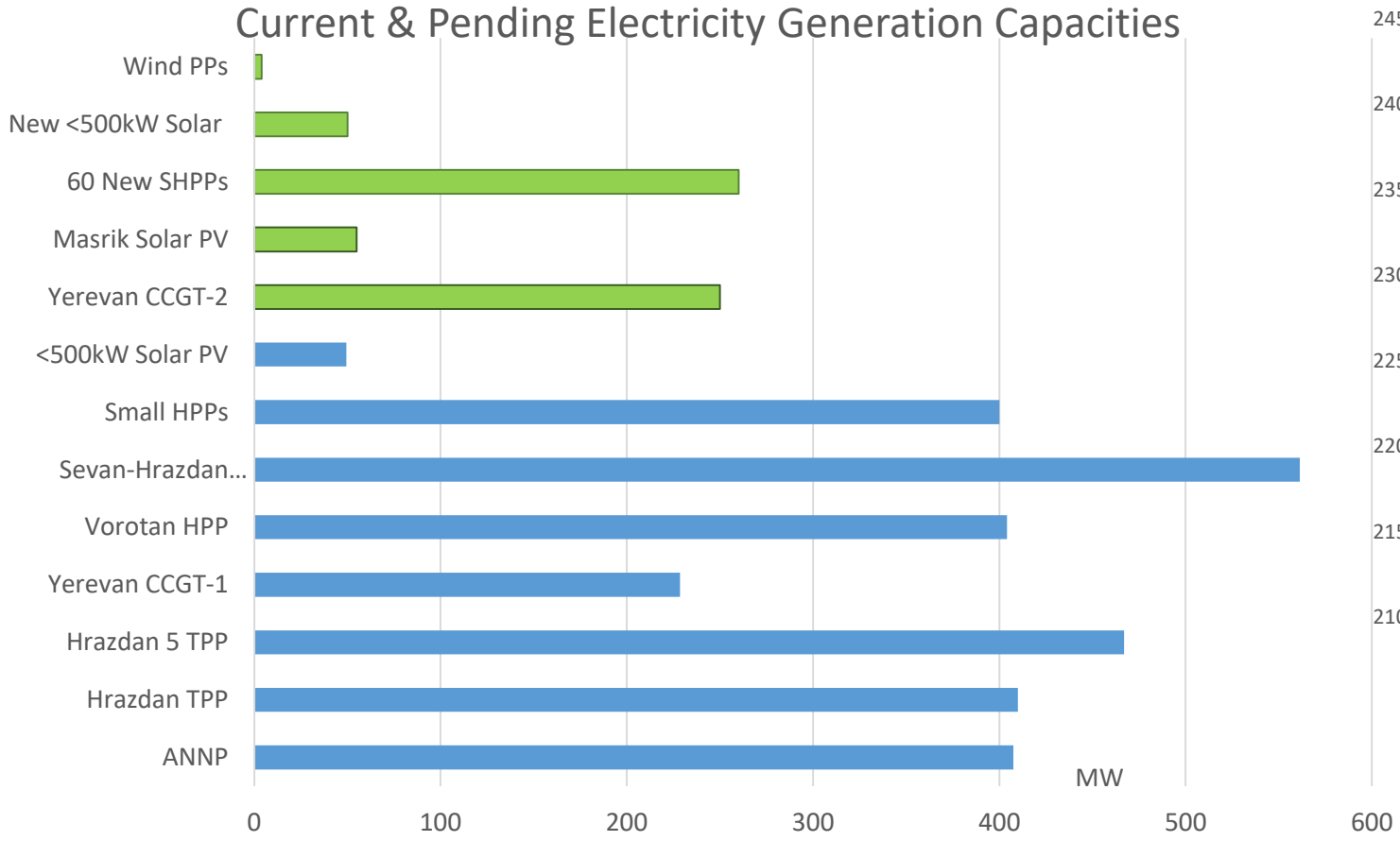
information (training, awareness, info. centers).

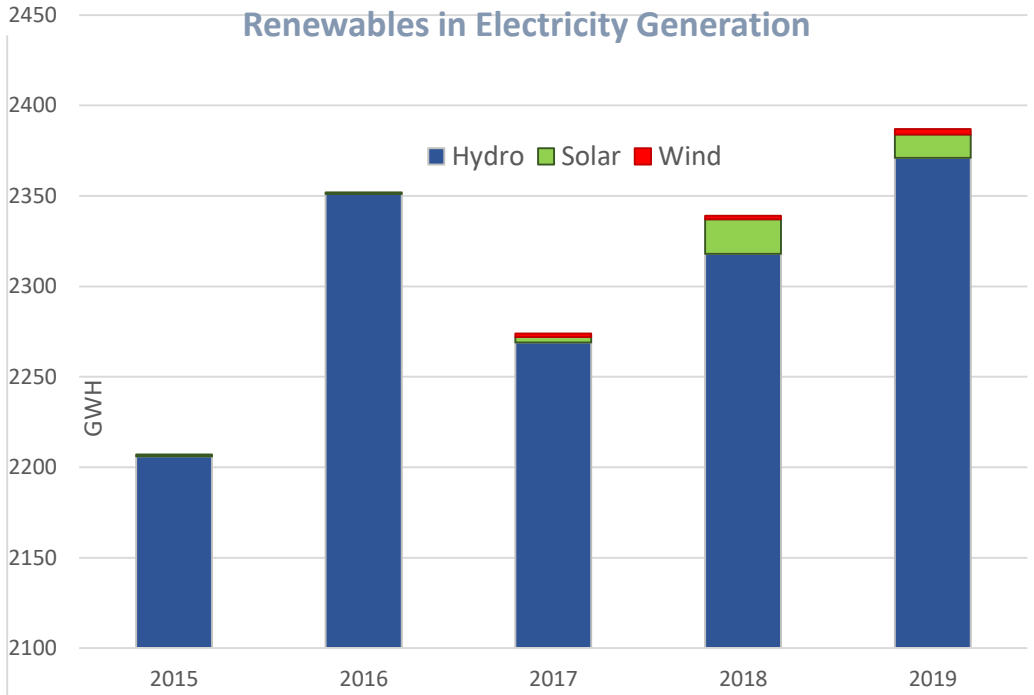
Armenia's Progress against NEEAP 1 targets and NEEAP 2 Targets

Sector/Measure		Baseline Final Energy Consumption	Estimated annual savings SECTOR TARGET based on 2010 baseline (% and ktoe)		Sector target in 2014 (ktoe)	Baseline Final Energy Consump-tion	Estimated annual savings per measure based on 2010-2012 average baseline (% and ktoe)				Aggregated savings target by 2020	
		2010 (in ktoe)	annual/ cumulated savings	Cumulative 1st NEEAP TARGET set for 2014 (in ktoe)	ACHIEVED	Avg for 2010-2012 (in ktoe)	Cummulative for 2017 (1st NEEAP)	Cumulative for 2017 (2nd NEEAP revised)	Cummulative for 2018 (1st NEEAP)	Cummulative for 2018 (2nd NEEAP revised)	in ktoe (1st NEEAP)	Cummulative for 2020 (2nd NEEAP revised)
I.	Horizontal /Cross-cutting	no target	NO TARGET									
			Cummulative ktoe		35.7			61.0		69.9		91.5
II.	Buildings (Residential)	695.7	Cummulative %	2.7%	0.0%	750.5	9.9%	4%	13.5%	4.5%	23.0%	7%
			Cummulative ktoe	18.8	0.1		74.3	31.3	101.3	34.1	172.6	51.4
III.	Public & Private S ervice Sector	206.9	Cummulative %	1.7%	26.6%	267.9	6.1%	53.5%	8.4%	61.1%		
			Cummulative ktoe	3.5	55.1		16.3	143.3		3.7		
IV.	Industry & Power	358.3	Cummulative %	6.7%	0.4%	362.1	19.8%	10.3%		7%		
			Cummulative ktoe	24.0	1.4		71.7	37.3		.1		
V.	Transport /Mobiliy	499.6	Cummulative %	3.1%	14.1%	52		7%		0%		
			Cummulative ktoe	15.5	70.6			0.4		.7		
VI.	Agriculture	140.1	Cummulative %	1.1%	0.1%	14		7%		3%		
			Cummulative ktoe	1.5	0.13		3.4	4.0	3.9	7.0	20.4	10.7
VII.	Total□	1900.6	Cummulative %	3.3%	8.6%	2047.0	10.4%	18%	13.8%	20.7%	22.3%	37.6%
			Cummulative ktoe	63.3	163.1		212.6	367.4	282.0	424.6	422.2	770.1
		22.10 GWh	Cummulative GWh	0.7	1.9	23.8	2.5	4.3	3.3	4.9	4.9	9.0

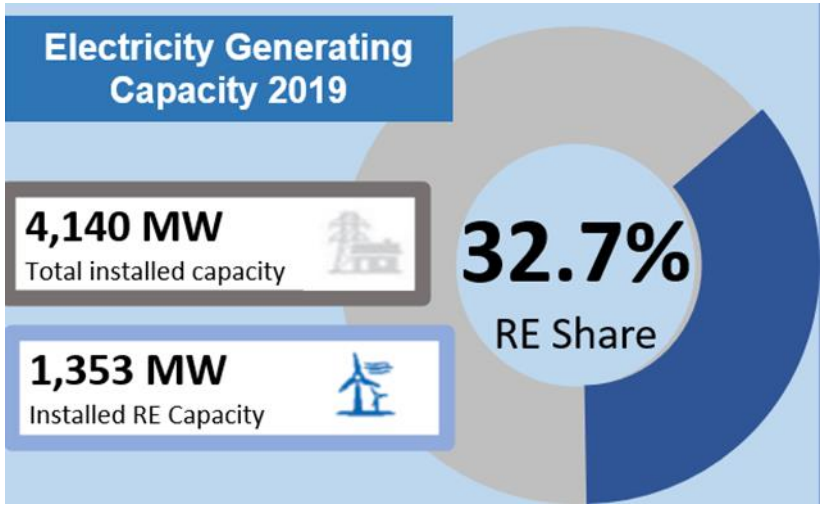


Current and Pending Power Generation Capacities





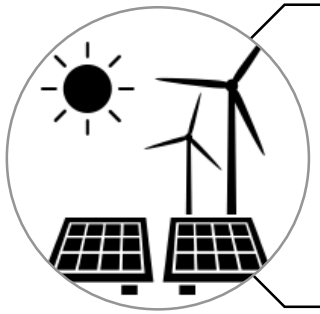
	Biomass	Solar PV	Wind	Small Hydro	Total without large HPP
Installed Renewable Electricity Capacity 2019 in MW	0	17	3	370	390
Technical Potential for Installed Renewable Electricity Capacity in MW	29	1,169	795	91	≈2,084



Energy Efficiency & Renewable Energy Targets

37% by 2020 (NEEAP2)

3rd NEEAP under preparation



15% by 2030 (Energy Devt Strategy)

in adoption stage

Extended nuclear beyond 2026

Visible Trends

present

- NG-based Gas-turbine TPPs
- Increased share of RE, mainly due to the SHPP
- Reliance on natural gas for heating
- Increasing solar water heating
- Independent solar PV boom
- Natural gas operated vehicles (74%!)
- 300+ electric vehicles

future

Higher efficiency of TPP - CCGT

Aggressive renewable energy promotion combined with market liberalization

- Wind Power farms
- Grid-Connected Solar
- Small-Scale PV/net metering/ rooftop/SWH

Increased share of electric vehicles

Increased electricity exports through regional interconnections

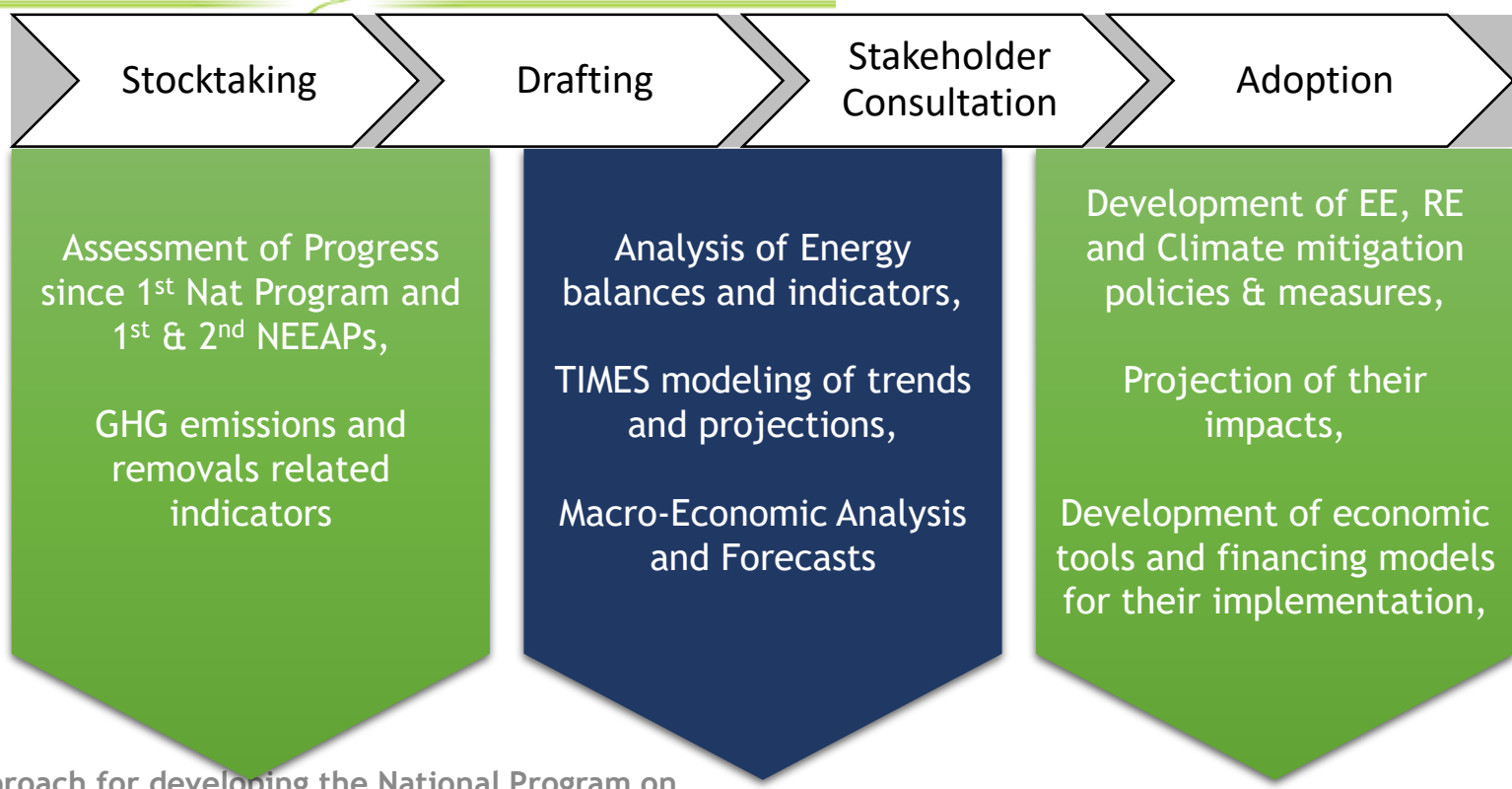
ONGOING: development of the draft of “National EE&RE Program for 2021 to 2030 and 3rd NEEAP based on intl best practices in:

National Energy Security Concept	**Energy Development Strategy**	**National EE Action Plans**	**National Renewable Energy Action Plans**	**National Energy and Climate Plans**	**Low Emission Development Strategies**
Internal Energy Markets: interconnections, transmission, market integration, energy poverty	Least cost generation, diversification, security	EED & EPBD, CEPA	**Scaling-up RE, CEPA**	Decarbonization of the economy	Decarbonization, resilience, adaptation & mitigation

Approach to National EE&RE Program for 2021 to 2030 and 3rd NEEAP preparation

Key Elements

- Decarbonization of the economy: reduction / avoidance of GHG emissions, renewable energy
- Energy efficiency
- Renewable Energy Sources
- Energy Security
- Energy Markets: interconnections, transmission, market integration, energy poverty



THANK YOU