

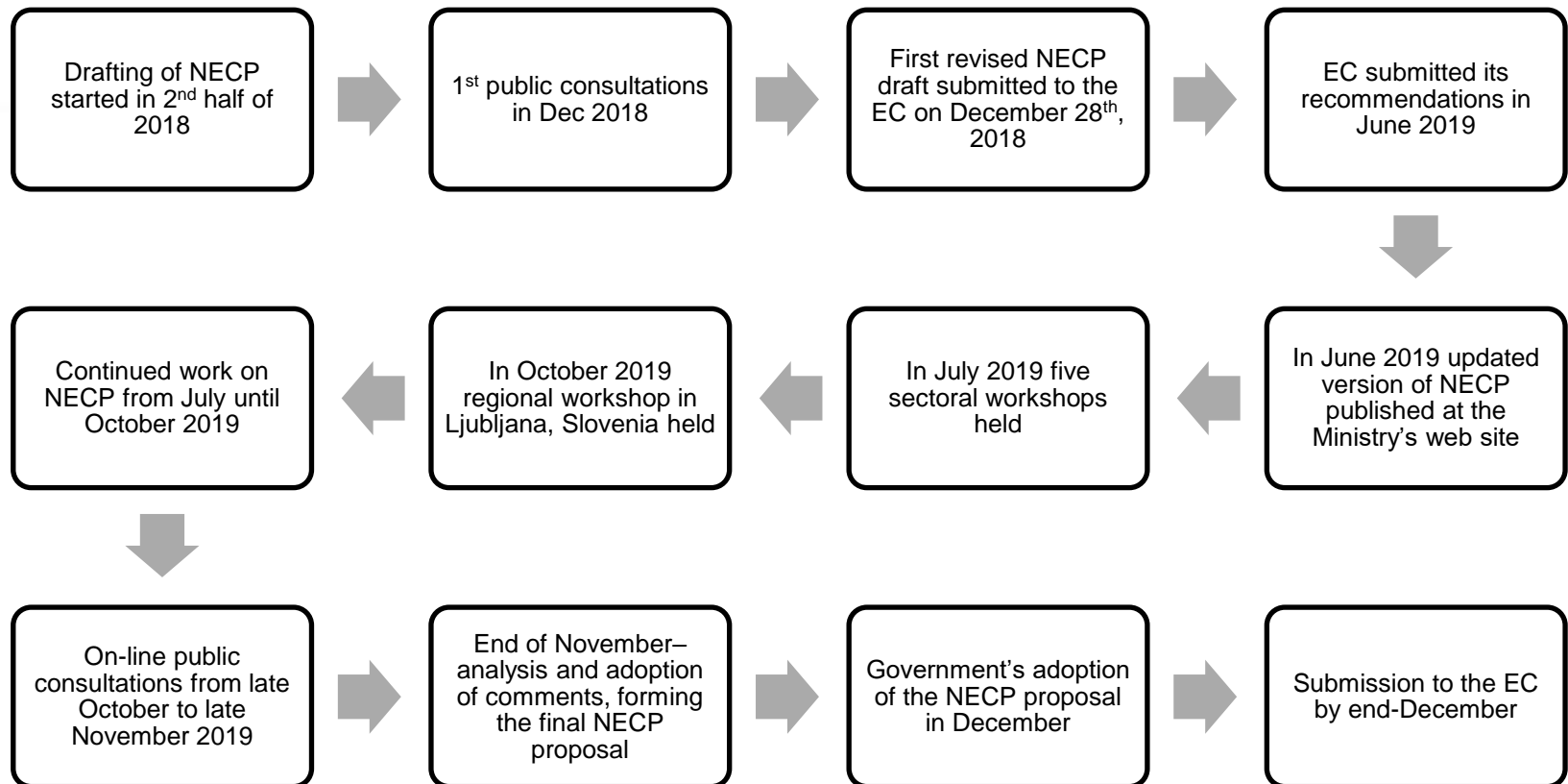
# Evaluation of EE policy measures in National Energy and Climate Plan

## - Case Croatia -

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# NECP development process (2018-2019)



Some revisions are considered already in 2020 – NECP considered to be ‘live’ document!

- Covering five dimensions of the Energy Union:
  - Energy security (diversification, imports, flexibility)
  - The internal energy market (interconnections, transmission infrastructure, market integration, energy poverty)
  - Energy efficiency
  - Decarbonisation (GHG emissions and removals, renewable energy)
  - Research, innovation and competitiveness
  
- **Impact assessment** of the planned policies and measures
  - On energy system and GHG emissions and removals
  - Macroeconomic impacts
  
- National plans covering the first period from 2021 to 2030 should pay particular attention to the **2030 targets** for **greenhouse gas emission reductions, renewable energy, energy efficiency** and **electricity interconnections**

# NECP goals

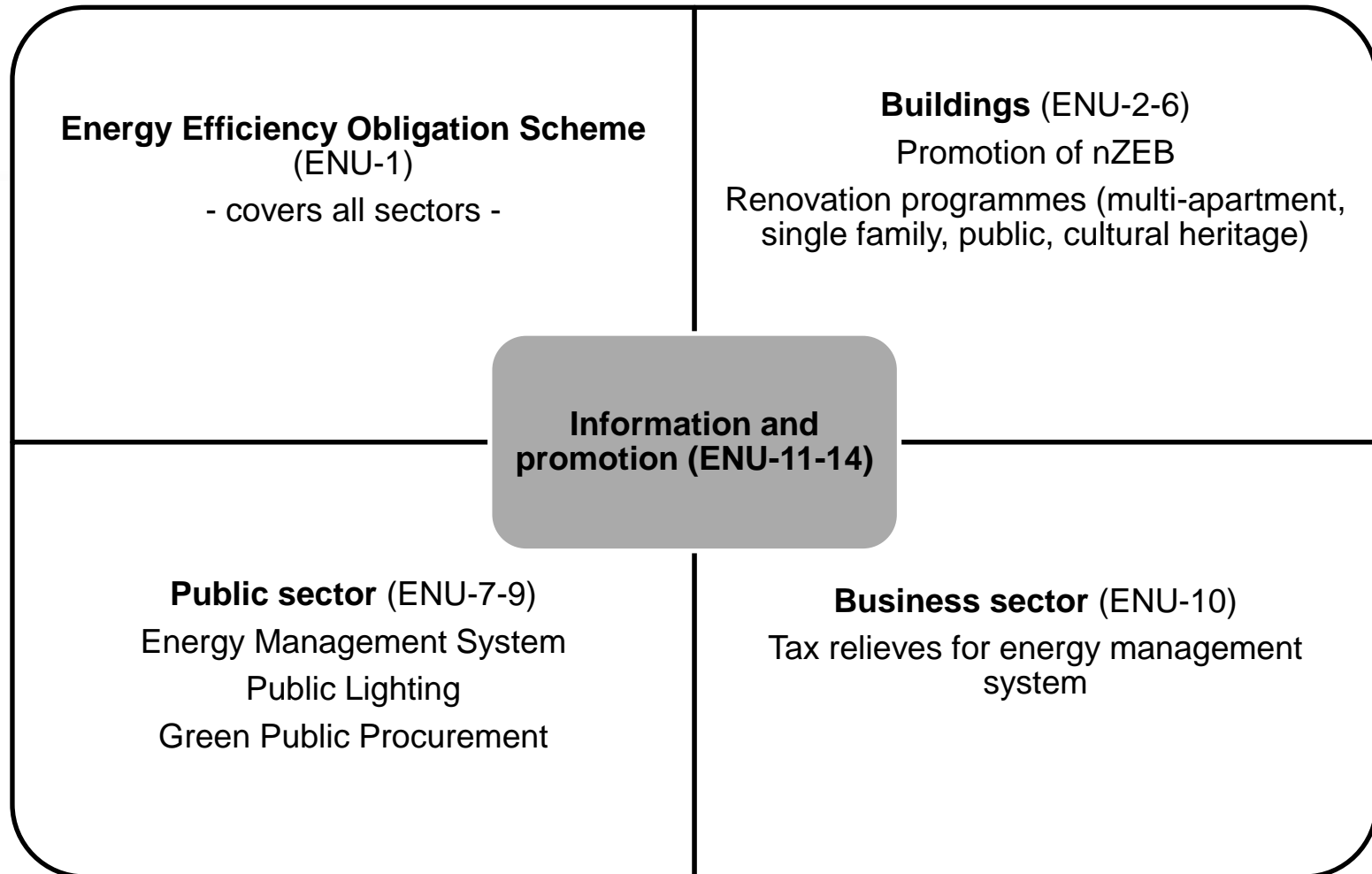
- Set for all five dimensions
- Main goals are:

<b>ETS emissions reduction compared to 2005*</b>	At least 43 %
<b>Non-ETS emissions reduction compared to 2005</b>	At least 7 %
<b>RES share in gross final energy consumption</b>	36,4 %
<b>RES share in transport</b>	13,2 %
<b>Primary energy consumption</b>	344,4 PJ
<b>Final energy consumption</b>	286,9 PJ

\* For the entire emission trading sector

- 86 measures proposed
  - 34 decarbonisation – emissions
  - 12 decarbonisation – transport
  - 4 decarbonisation – renewable energy sources
  - **17 energy efficiency (14 in end-use sectors)**
  - 9 energy security
  - 5 internal energy market
  - 6 research, innovation and competitiveness
  
- The most important areas are:
  - In power sector: renewables (no financial support, just ETS)
  - **In buildings: NZEB renovation and construction**
  - In transport: biofuels and e-vehicles

# EE measures (without transport)



# Evaluation of individual EE measures

<b>Art. 7 EED target 2030</b>	<b>[PJ]</b>
<b>Cumulative savings</b>	125,3
<b>Annual savings</b>	2,3

Nr.	Measure	Evaluation method/principle	Results
ENU-1	EEOS	70% of Art.7 target to be achieved by EEOS	87,7 PJ cumulative 1,600 PJ annually
ENU-3	Multi-app buildings	Deemed savings: 520.000 m2 annually	0,148 PJ annually
ENU-4	Single-family houses	Deemed savings: 350.000 m2 annually	0,191 PJ annually
ENU-5	Public buildings	Deemed savings: 350.000 m2 annually	0,169 PJ annually
ENU-7	EMS in public sector	Engineering estimates	0,100 PJ annually
ENU-8	Public lighting	Deemed savings: 770.000 lamps	0,090 PJ annually

# Evaluation of individual EE measures - example

Shares in total building stock	Construction period	Office	Education	Hospitals	Sports	residential	Other non-residential
Continental	< 1970	0,12	0,16	0,10	0,00	0,02	0,01
	1971-2005.	0,07	0,15	0,06	0,01	0,04	0,01
	> 2005.						
Coastal	< 1970	0,04	0,06	0,03	0,00	0,01	0,00
	1971-2005.	0,02	0,05	0,02	0,01	0,01	0,00
	> 2005.						
UFES [kWh/m <sup>2</sup> ]	Construction period	Office	Education	Hospitals	Sports	residential	Other non-residential
Continental	< 1970	188,19	154,85	234,59	124,6	126,26	197,15
	1971-2005.	141,1	133,66	122,91	50,26	66,61	113,45
	> 2005.						
Coastal	< 1970	108,15	68,33	66,98	126,86	73,16	100,66
	1971-2005.	80,75	58,89	21,4	87,65	58,94	47,69
	> 2005.						
FES [kWh]	Construction period	Uredske	Obrazovne	Bolnice	Sportske dvorane	Stambene	Ostale nestambene
Continental	< 1970	7.614.729,99	8.432.115,96	8.527.531,57	50.849,40	949.591,58	602.917,94
	1971-2005.	3.398.018,03	7.144.686,05	2.656.103,71	201.027,31	904.742,19	360.759,98
	> 2005.						
Coastal	< 1970	1.340.937,99	1.393.859,11	759.649,67	32.221,27	306.675,44	132.187,01
	1971-2005.	529.510,70	988.222,46	180.905,82	163.992,25	219.776,25	26.073,31
	> 2005.						
Annual FES [GWh / PJ]		46,92 / 0,169					
CUM 21-30 FES [PJ]		9,295					



# Achieved savings until 2019 – reality check

ALTERNATIVE MEASURES ACCORDING TO NEEAP	Year/ Savings [PJ]						Average annual saving [PJ]
	2014	2015	2016	2017	2018	2019	
<b>Energy renovation of SFH</b>	<b>0,0230</b>	<b>0,2774</b>	<b>0,3638</b>	<b>0,1377</b>	<b>0,0000</b>	<b>0,0152</b>	<b>0,1362</b>
EE Fund 2014-2016	0,0230	0,2774	0,3638	0,1377	0,0000		
EE Fund 2017-2020						0,0152	
<b>Energy renovation of MAB</b>	<b>0,0000</b>	<b>0,0706</b>	<b>0,0633</b>	<b>0,1553</b>	<b>0,1098</b>	<b>0,3059</b>	<b>0,1410</b>
EE Fund 2014-2016		0,0706	0,0633	0,1553	0,0017		
ESIF OPCC					0,1081	0,3059	
<b>Energy renovation of public buildings</b>	<b>0,0000</b>	<b>0,1220</b>	<b>0,0530</b>	<b>0,0968</b>	<b>0,1271</b>	<b>0,1888</b>	<b>0,1175</b>
EE Fund 2014-2016		0,0879	0,0525	0,0444			
EE Fund 2017-2020							
ESCO 2014-2015		0,0342	0,0005	0,0330	0,0946		
ESIF OPCC				0,0194	0,0326	0,1888	
<b>Energy renovation of public lighting</b>	<b>0,0400</b>	<b>0,0210</b>	<b>0,0167</b>	<b>0,0181</b>	<b>0,0100</b>	<b>0,0269</b>	<b>0,0221</b>
EE Fund 2014-2016	0,0400	0,0198	0,0140				
ESCO		0,0011	0,0027	0,0181	0,0100	0,0269	

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# Thank you for the attention!



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