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Norwegian Embassy

HWEA
Hellenic Wind Energy Association

Offshore in Greece: Current situation and perspectives

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Athens, 12 April 2019

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The issues addressed

1. **The role of the Regulator & National Targets**
2. **Current legislation framework** (Offshore Wind parks licensing procedure, New RES support mechanism, Policy Measures, RES Auctions, Interconnections)
3. **Thoughts of the Regulator** The Regulator actions

1.1

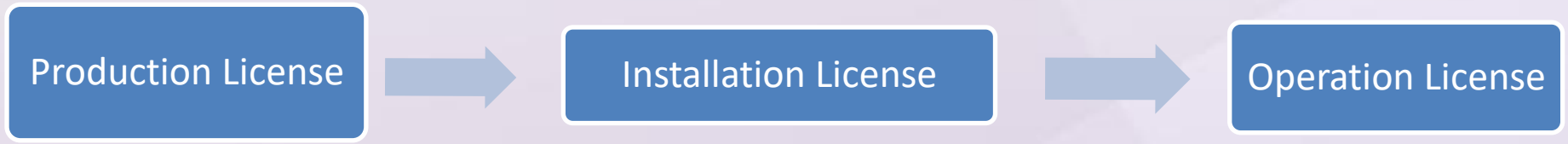
The Role of the Regulator

1.1 Role of the Regulator in renewables area & licensing

- RAE's responsibility is concentrated primarily on the electricity sector
- Three Stages' licensing Procedure (not in smaller projects that are exempted from Production License, PL)

RAE's Licensing Responsibility

RAE's Monitoring Responsibility



- Issued by RAE
- Approval of Preliminary Scope of Work Analysis
- 25 years duration
- Monitoring, renewal, amendment / modification, transfer are controlled by RAE

- Issued by Ministry of Energy or Regional Authority
- Green light to commence installation works
- Once issued for 2 years with 2 times extension of total 3.5 years
- Prerequisites: Environmental Terms Approval & Binding Interconnection Terms

- Issued by the same Body as the Installation License
- Project becomes operational
- Duration 20 or 25 years
- Prerequisites: Interconnection Contract & PPA

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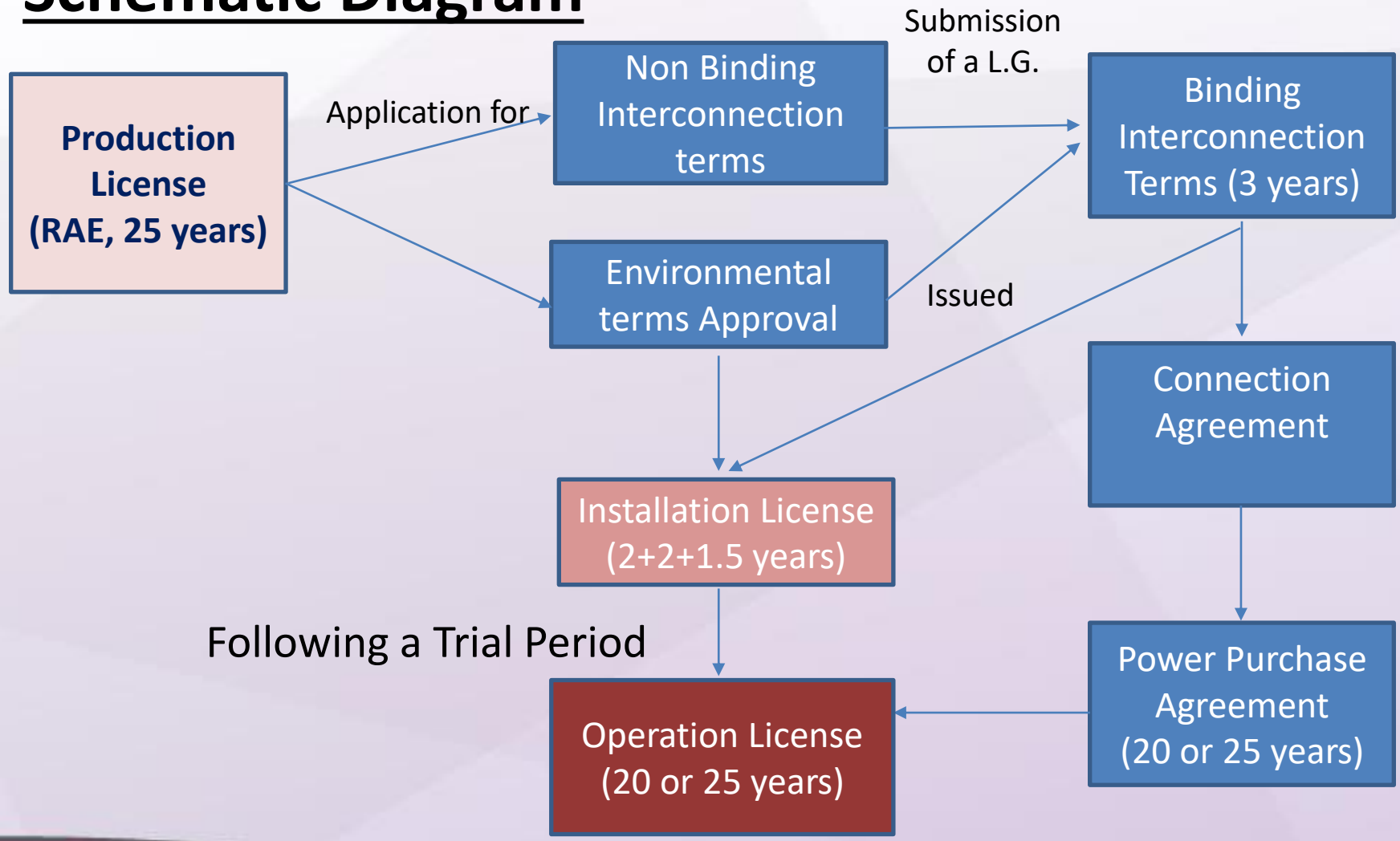
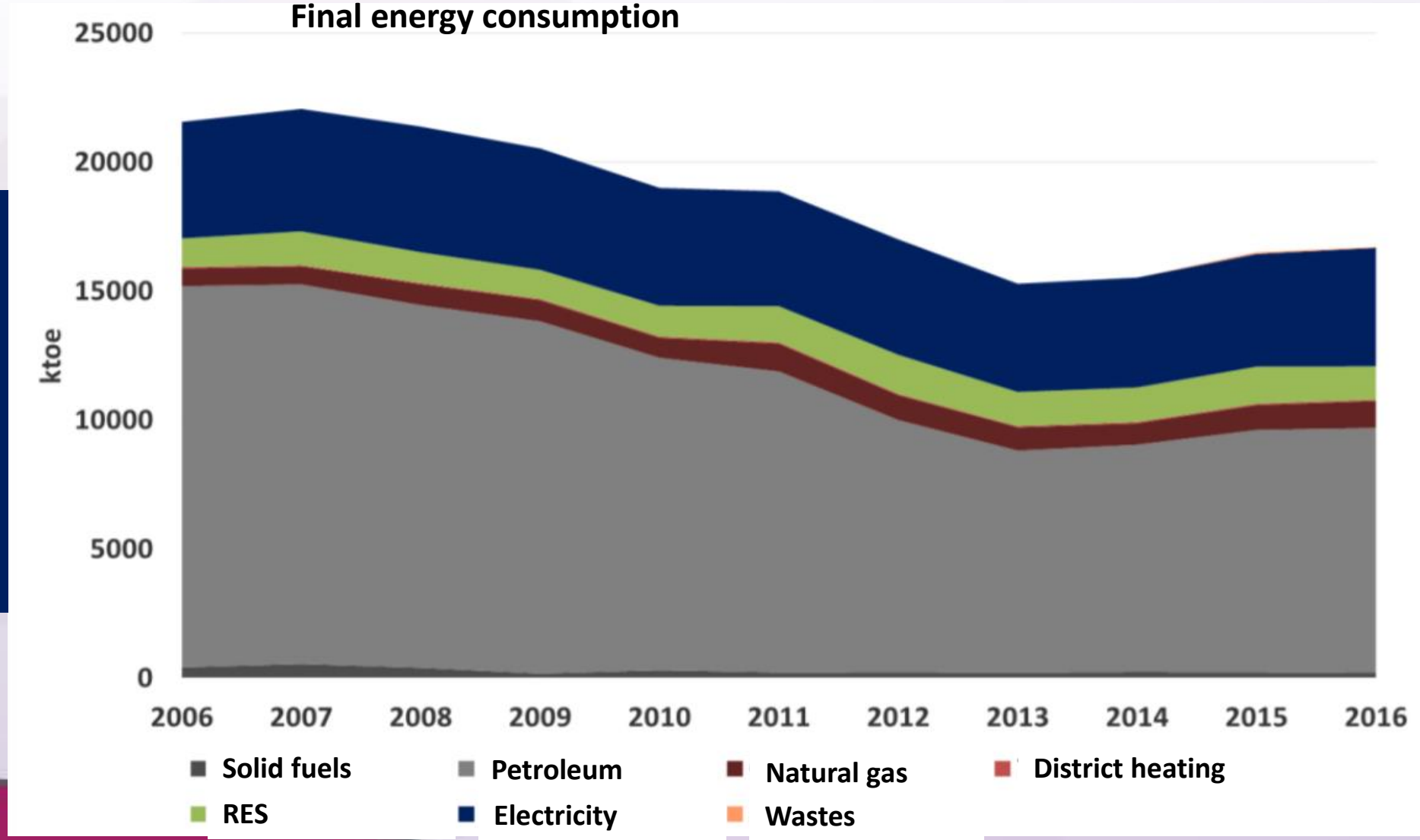
1.1 Role of the Regulator in renewables area & licensing

Schematic Diagram

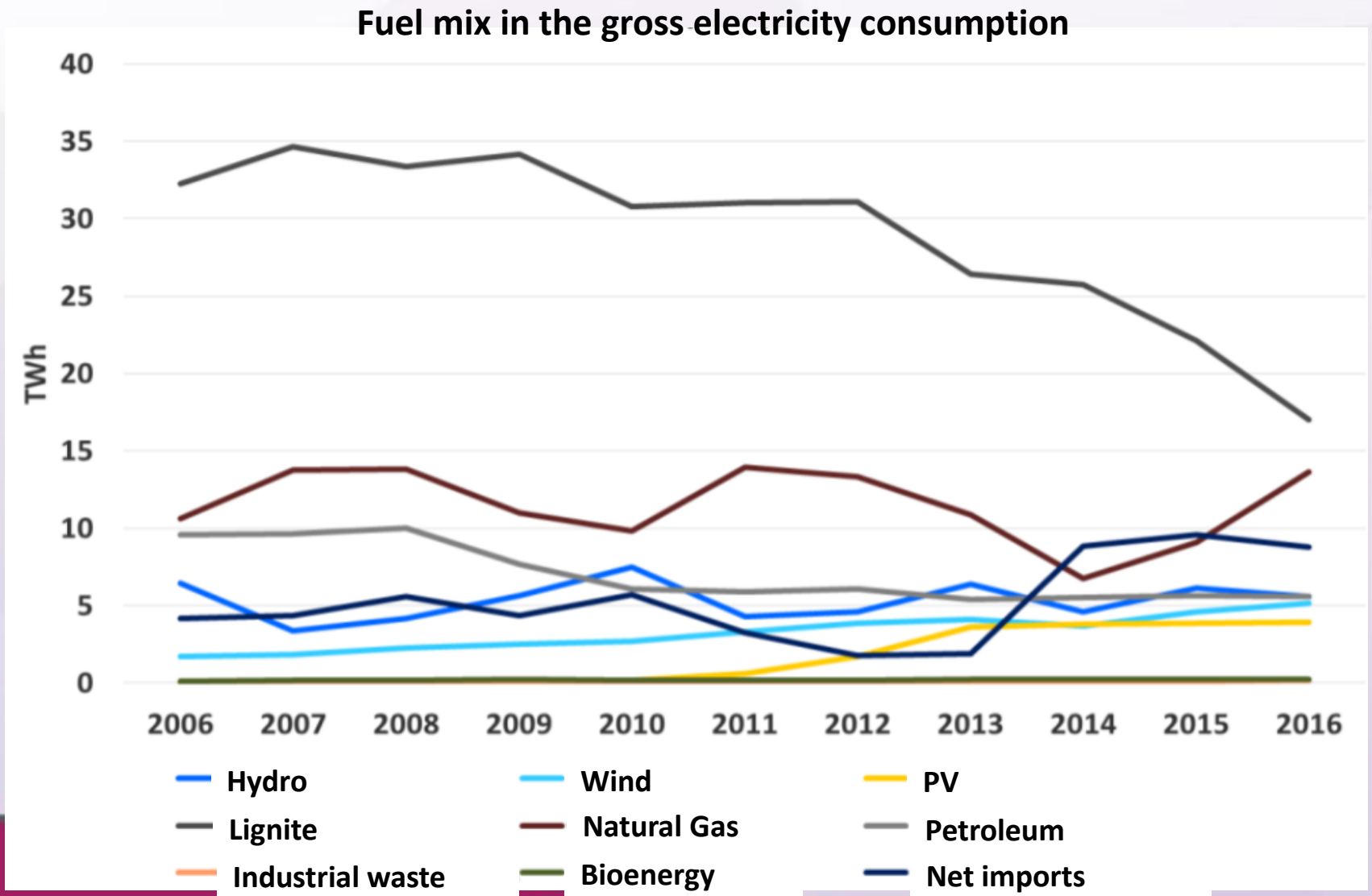


Current situation and National Targets towards 2030

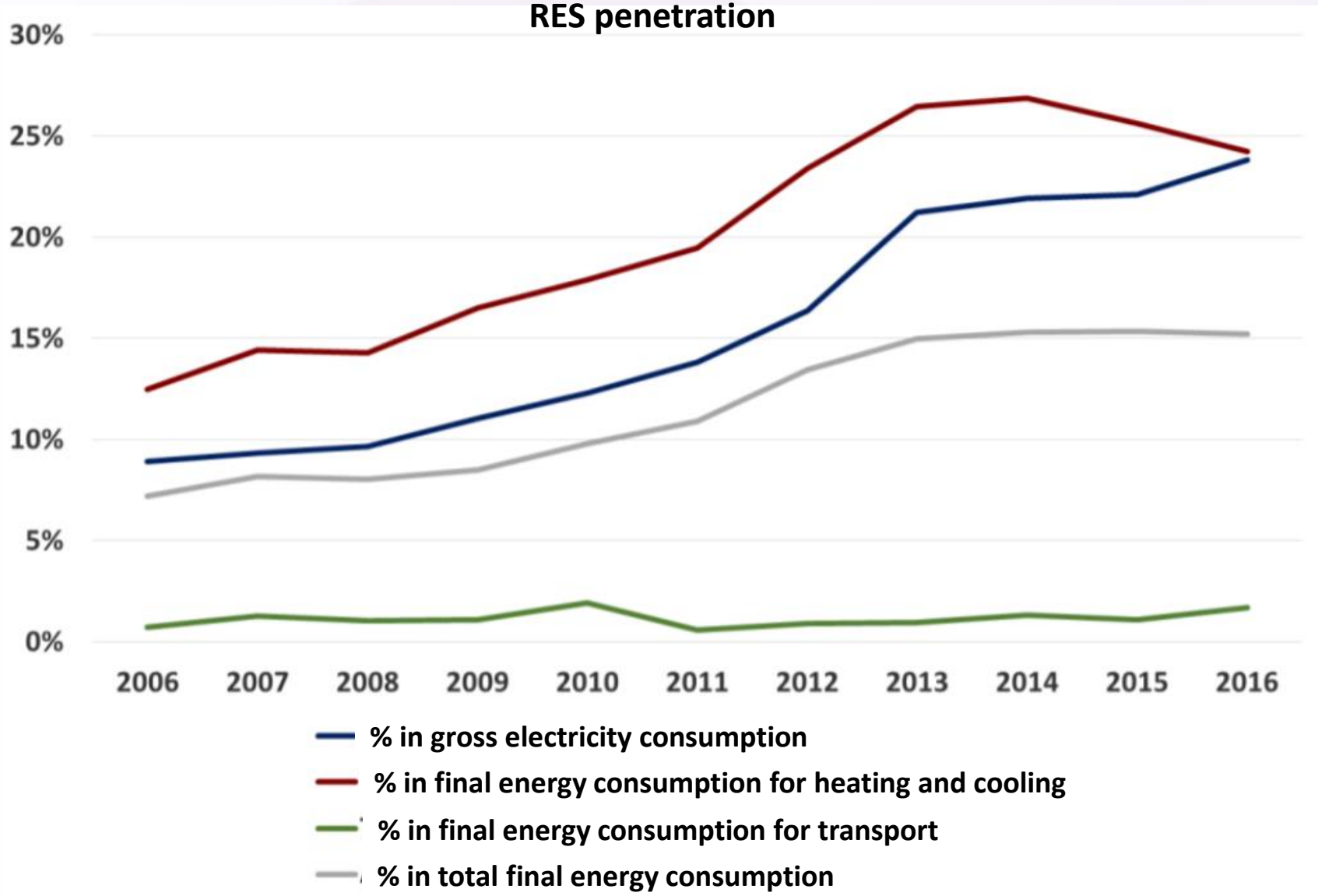
1.2



Greek energy system is becoming greener

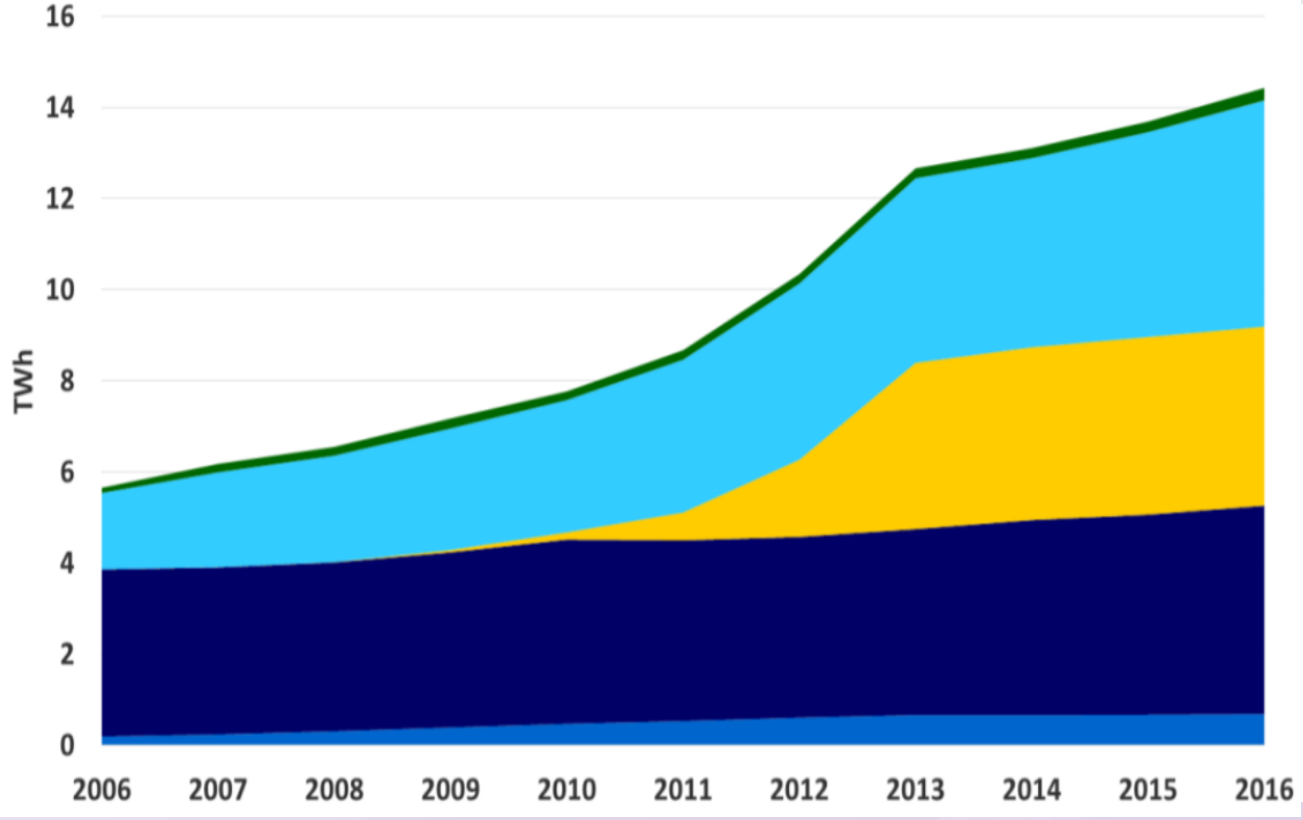


Increased RES share but stable during the last years around 15%

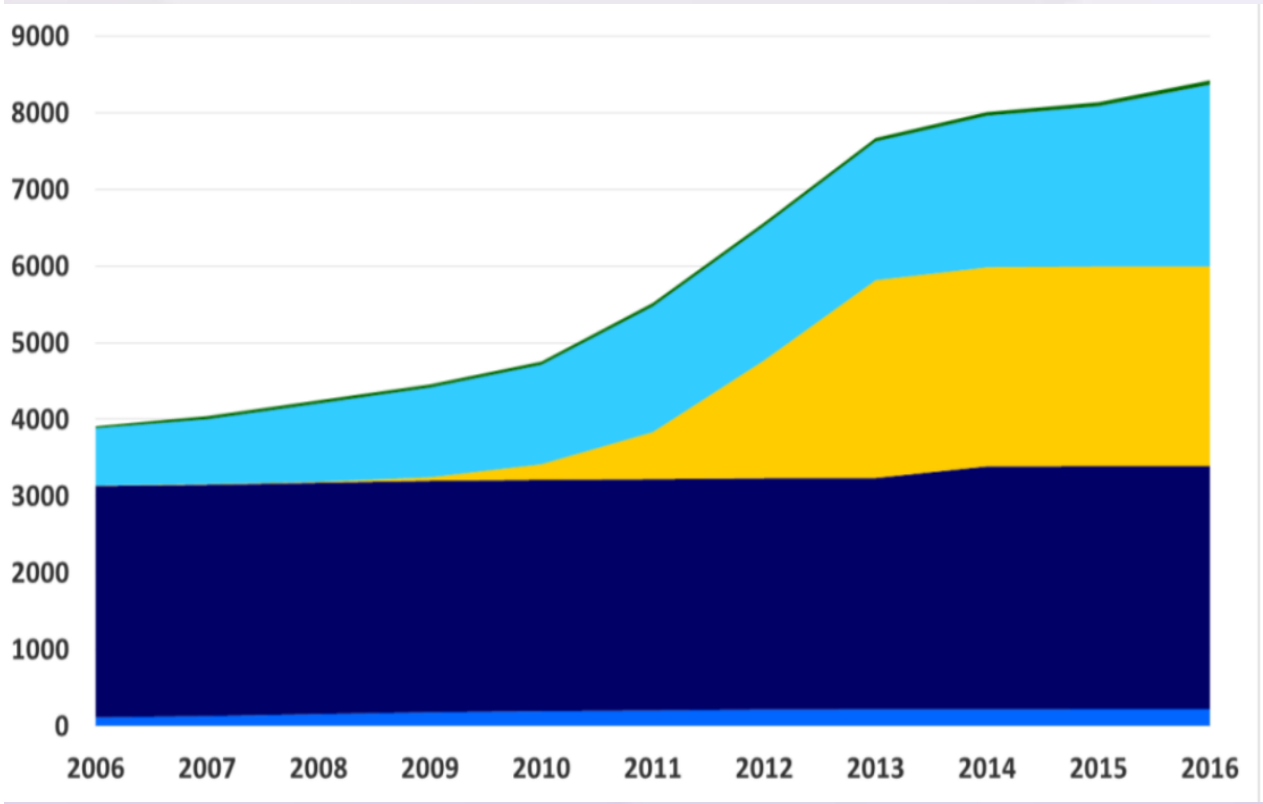


Increased RES penetration in electricity sector, 2006 - 2016

Electricity generation from RES (TWh)



Installed RES capacity (MW)



Hydro <10MW
Hydro >10MW
PV
Wind
Solid biomass
Biogas

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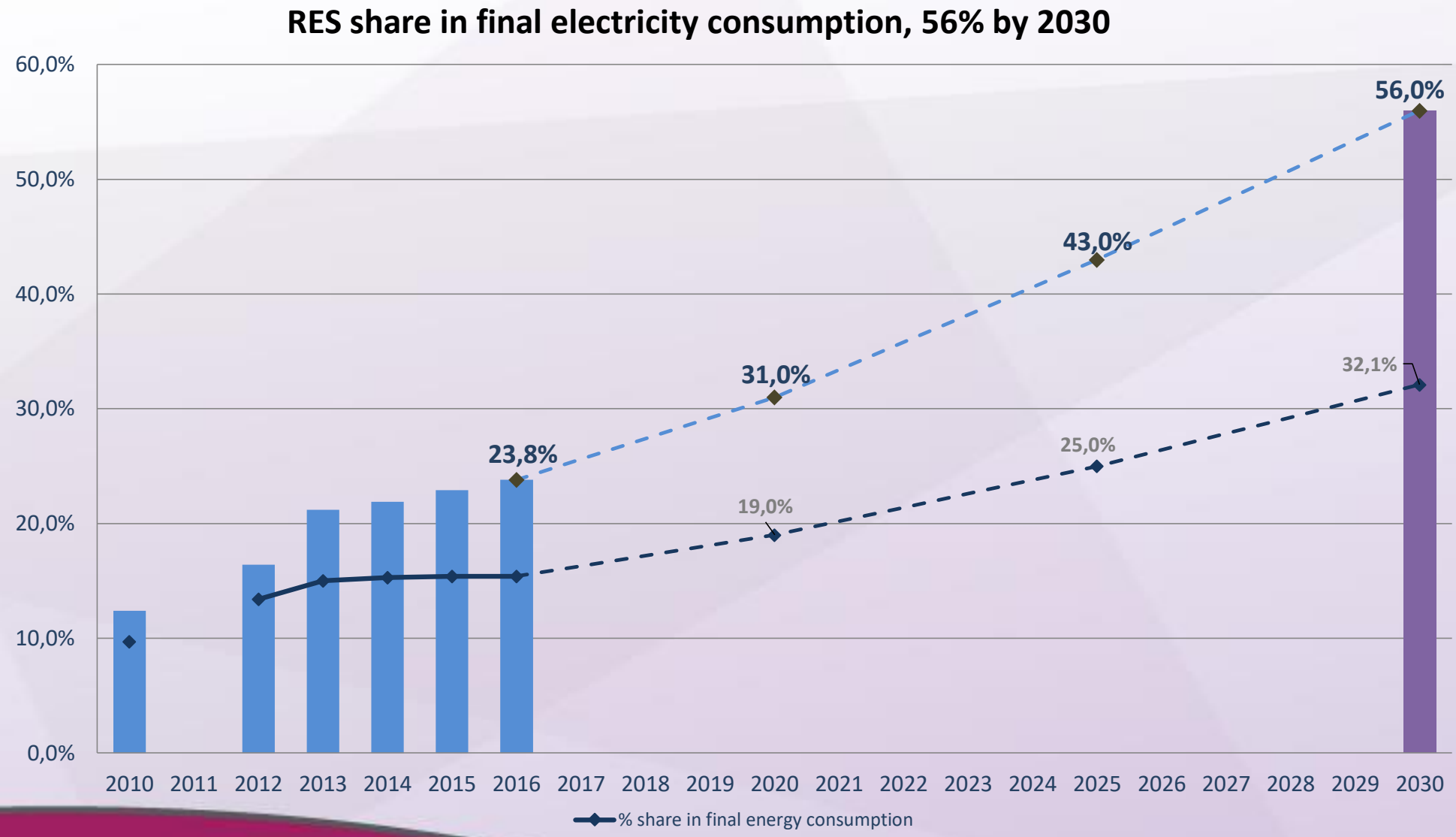
Towards 2030

National Energy and Climate Plan

✓ Reductions of GHG emissions in non-ETS sectors by 2030 in relation to 2005	16%
✓ Reductions of GHG emissions in ETS sectors by 2030 in relation to 2005	43%
✓RES share in gross final energy consumption	**30%**
✓RES share in gross final electricity consumption	**56%**
✓ RES share for heat and cooling	30%
✓ RES share for transport	14%

Basic scenario of NECP 2030



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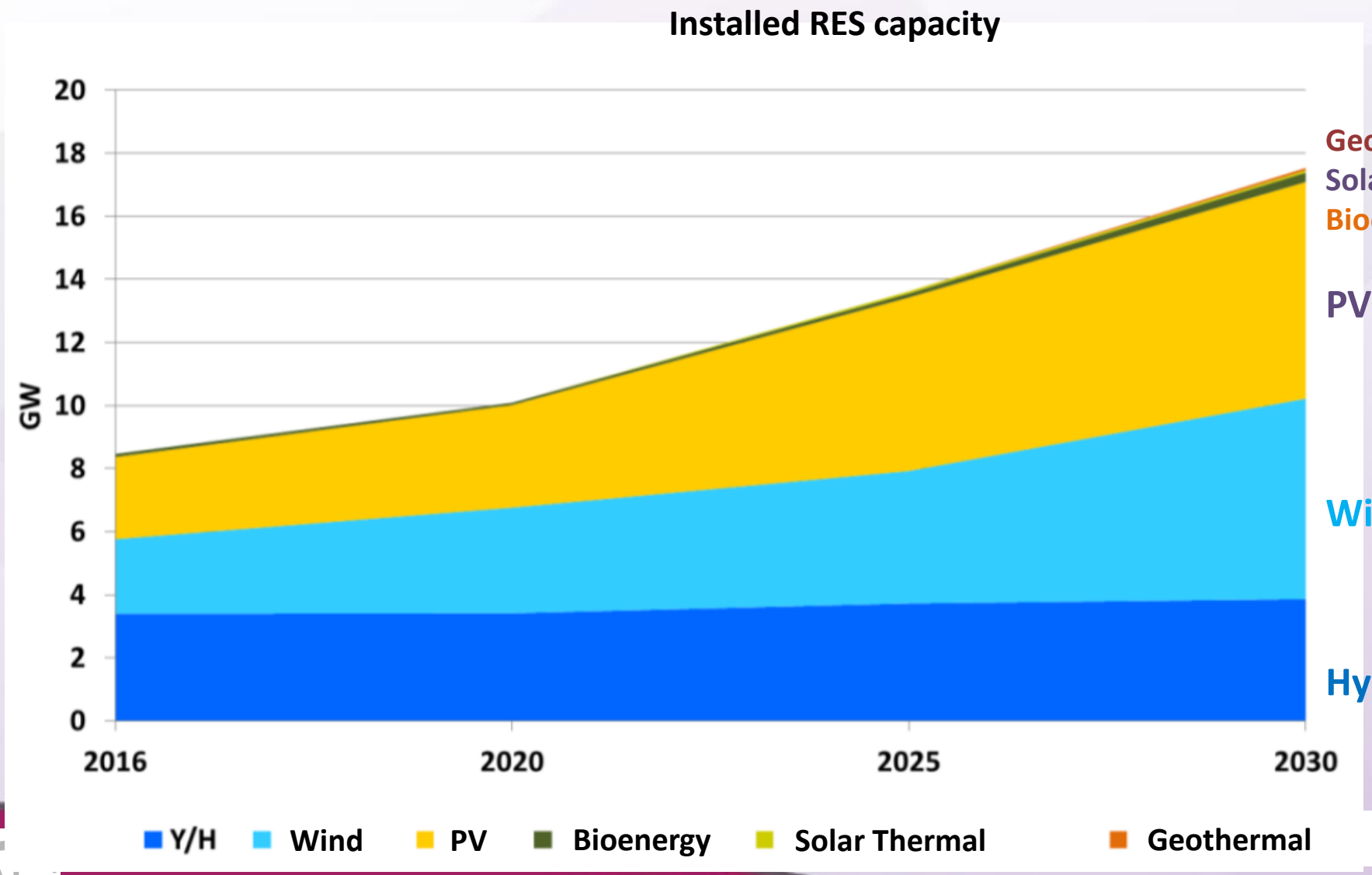
Basic scenario of NECP 2030



Geothermal 0,1 GW
Solar Thermal 0,1 GW
Bioenergy 0,3 GW

PV 6,9 GW

Wind 6,4 GW

Hydro 3,9 GW

2

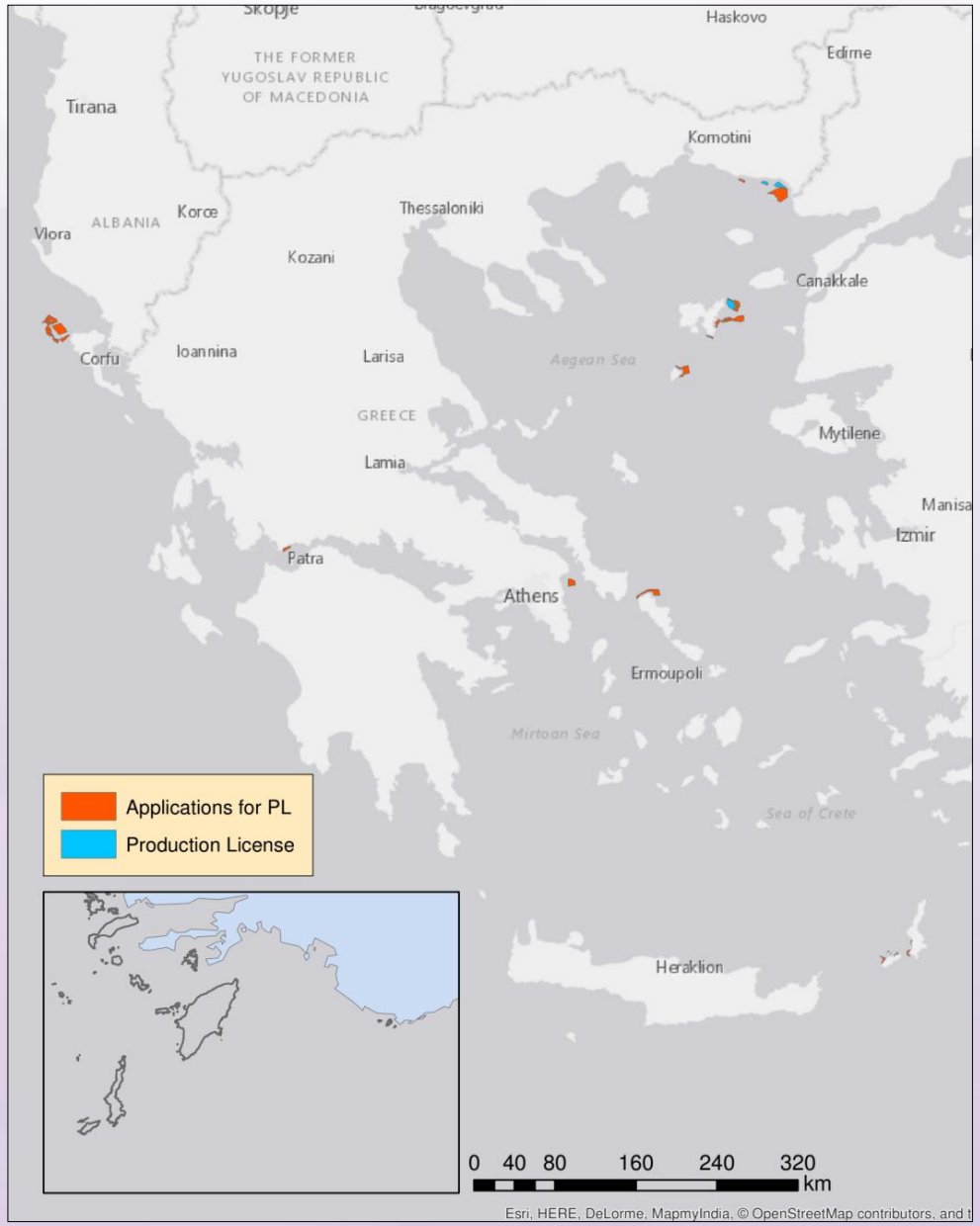
Current situation and legislation framework

2.1 Article 6A, Law 3468/2006

- A legislation framework is in place since 2010 (Law 3851/2010, articles 6, 15):
  - The offshore wind parks will follow a specific procedure.
  - A new secondary legislation framework is needed → The Government will "license" specific areas for offshore wind parks which never run.
- With article 42, par. 20, Law 4030/2011 (A' 249/25.11.2011) the already submitted applications could be evaluated by RAE with the criteria of par. 1, article 3, L. 3468/2006.
- New applications <u>cannot be submitted to RAE</u>

2.2 Current situation: experience of offshore projects in Greece

- No installed offshore projects in Greece
- Fixed-bottom wind offshore projects:
  - **23** projects (total capacity **3796,35 MW)** have applied for Production License. The applications have been submitted before 2010
  - **2 projects** (**714,15 MW**) <u>have obtained Production License</u>
- As per Law 3851/2010 as valid, no further applications can be submitted for Production License from wind offshore.
- That Law provided the elaboration of a National Programme for the development of offshore wind farms



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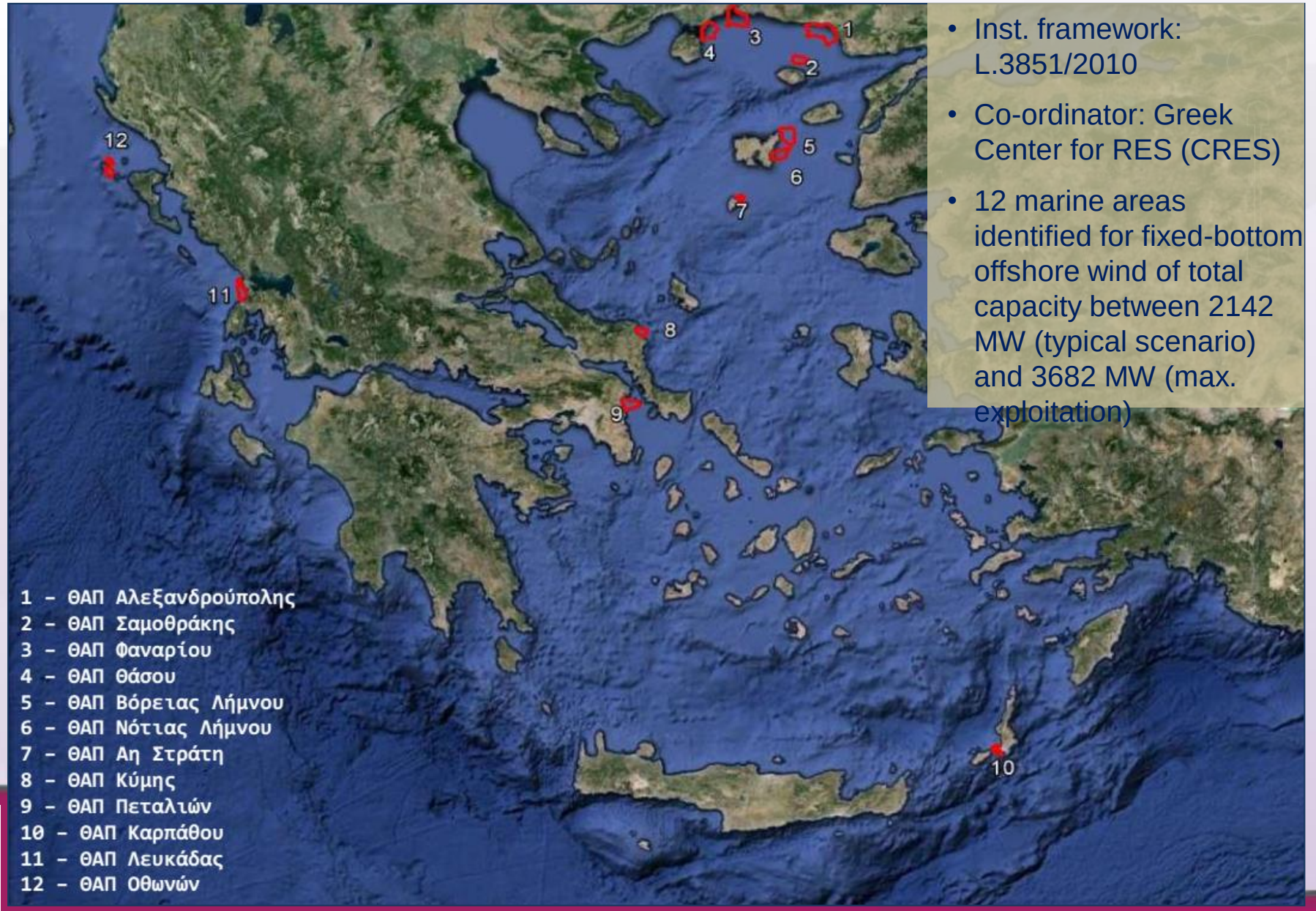
2.3 National Programme for the development of offshore wind farms 2010 (a)

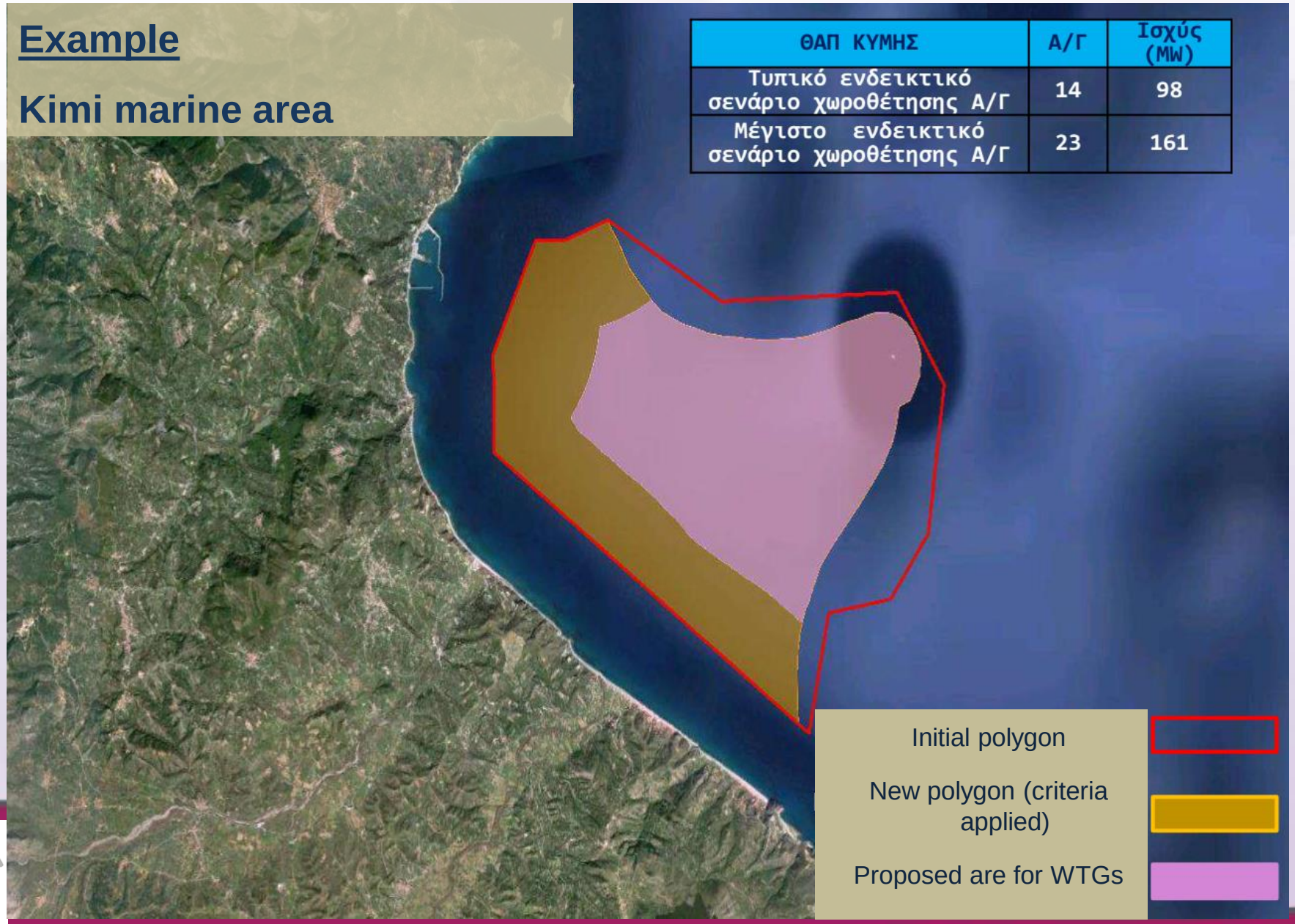


- Inst. framework: L.3851/2010
- Co-ordinator: Greek Center for RES (CRES)
- 12 marine areas identified for fixed-bottom offshore wind of total capacity between 2142 MW (typical scenario) and 3682 MW (max. exploitation)

2.3 National Programme for the development of offshore wind farms 2010 (b)

Example

Kimi marine area



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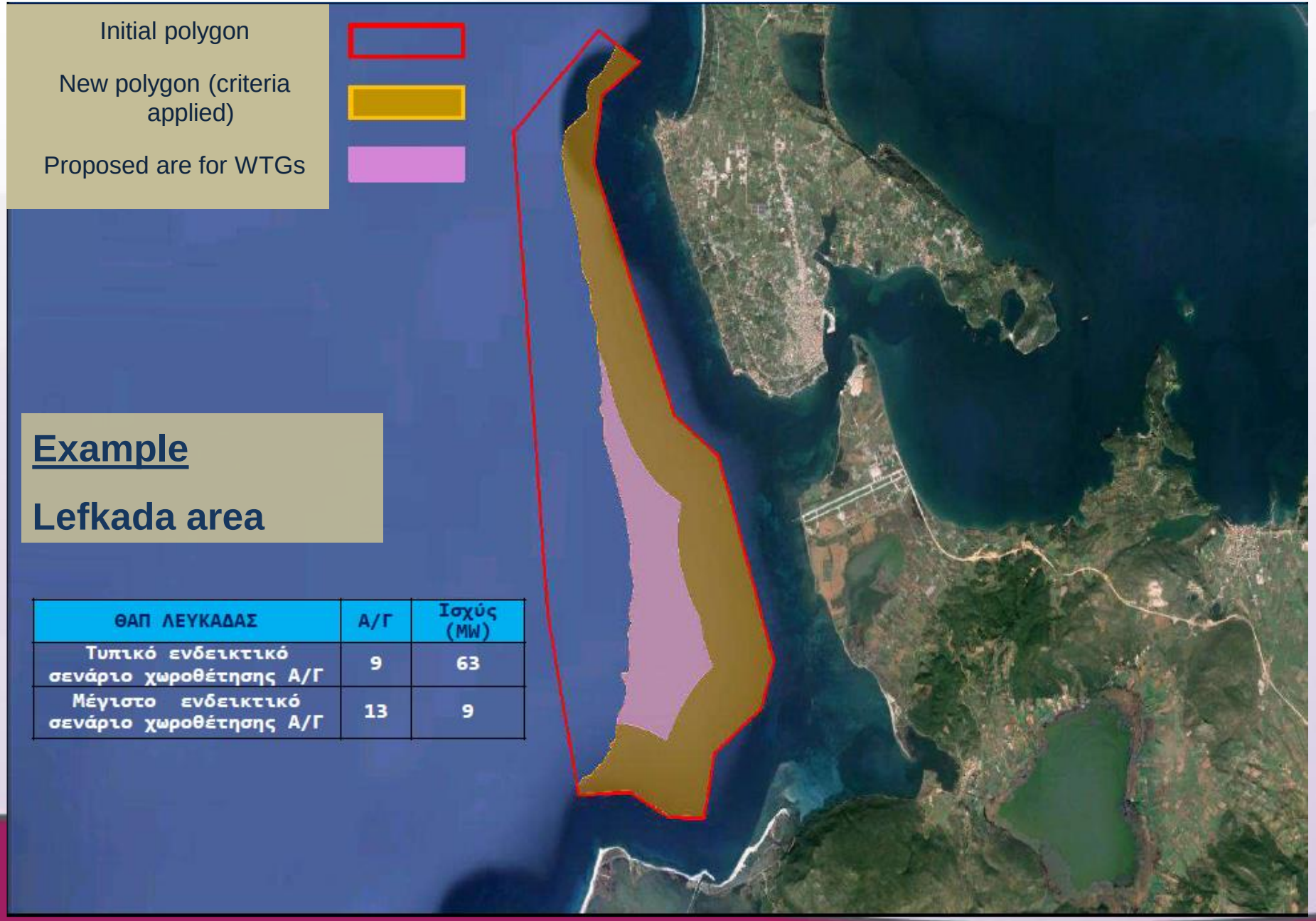
2.3 National Programme for the development of offshore wind farms 2010 (c)



ΘΑΠ ΛΕΥΚΑΔΑΣ	Α/Γ	Ισχύς (MW)
Τυπικό ενδεικτικό σενάριο χωροθέτησης Α/Γ	9	63
Μέγιστο ενδεικτικό σενάριο χωροθέτησης Α/Γ	13	9

2.4 The new RES support mechanism (FiP)

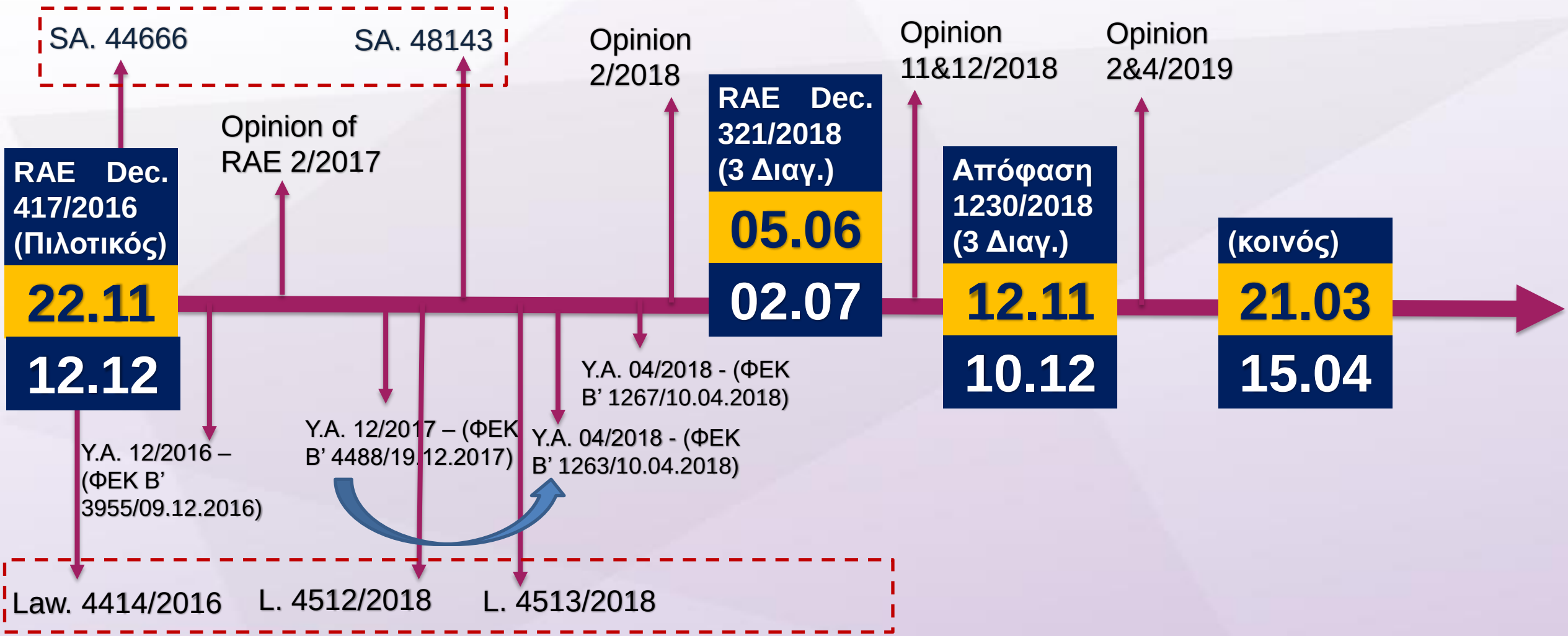
- ✓ Law 4414/2016 (OG 149A) is the framework law for the new supporting scheme (feed-in premium) in Greece.
- ✓ The European Commission has checked the compatibility of Law 4414/2016 with the Guidelines on State aid for environmental protection and energy 2014-2020 ("EEAG 2014-2020") with decision C(2016) 7272/16.11.2016 – SA 44666

http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_44666

- ✓ MD 212712/2017 (OG4488B) and RAE's Dec.321/2018 (OG1466B) determine the procedure for the competitive bidding process (auctions)
- ✓ Auctions' procedure has been approved by EC [Decision C(2017) 9102/16.11.2016]. DG Comp approved the National scheme for the permanent auction procedures (SA. 48143)

Link: *http://europa.eu/rapid/press-release_IP-18-5461_en.htm*

2.5 Legislation framework (Auctions)



2.6 The remuneration of Offshore: alternative scenarios

According to EC Guidelines “EEAG 2014-2020” and its transfer to the Greek Legislation (Law 4414/2016 & various MDs) there exist the following alternatives for FOW compensation:

a) Administrative determination (not by auctions): **Demonstration Projects** (par.c, art. 3, Law 4414/2016)**.** Also possible for projects of **par.10, art.4**, Law 4414/2016.

b) For **other projects**, the remuneration is determined through competitive bidding process (auctions)

c) For projects **over 250 MW** per site, the EEAG 2014-2020 provide the option to the member states to follow a process with individual notification to EC-DG COMP for the determination of the remuneration. At the moment, this provision has not been endorsed by Greek legislation. *RAE already sent institutionally her positive opinion to the Minister of Energy & Environment for this issue.*

2.6.1 (1) The case of Demonstration Projects

" 'Demonstration project' means a project demonstrating a technology as a first of its kind in the Union and representing a significant innovation that goes well beyond the state of the art"
(EEAG 2014-2020, 1.3 (45) & Greek Law 4414/2016, art.2, par.6)

- Generally*, Demonstration Projects are compensated according to a FiP scheme, where the Reference Value (RV) is administratively determined (not by auction) (cf. MD 184573/13.12.2017, art.3, par.2).
- Currently the administratively determined RV for wind onshore is 70 €/MWh (cf. MD /25511/882/20.3.2019) and could be altered through a Ministerial decision.

** In case the Demonstration Project is planned by Greek Centre for RES (CRES), a University or research center in the framework of a programme, then the project is compensated under a FiT scheme for the duration of the programme (Greek Law 4414/2016, art.3, par.5.c)*

2.6.1 (2) - Possible option

- There is an option for an additional premium, on top of the administratively determined RV, for offshore projects, which pay on their own the cost of the interconnection with the interconnected System
- Specifically, as per Law 4414/2016, art.4, par.10 the Minister has the option to determine administratively such additional premium with his decision after RAE's opinion.
- Its exact amount cannot exceed the 25% of the administrative RV for wind onshore subject to the resulting IRR of the offshore project not being higher than the discount rate applied for the administrative determination of the RV or of the maximum RV permitted within the auction for wind onshore.

2.6.2 (b) Other Projects

- Remuneration under a FiP scheme
- Reference Value determined through a competitive bidding process (auctions)
  - Results of Wind Auctions (July 2018) – 69,53 €/MWh
  - Results of Wind Auctions (December 2018)– 58,58 €/MWh
- MD 184573/13.12.2017 (art. 5.b) foresees dedicated auctions for specific type of projects incl. wind offshore

Results of RES Auctions (Onshore Wind projects) – 2018

Categories	Auctioned Capacity (max) (MW)	Final Auctioned Capacity (MW)	Project Applications (No/MW)						Auction				
			Applied		Approved		Granted		Bids	Ceiling price (€/MWh)	Highest Bid (€/MWh)	Lowest Bid (€/MWh)	Weighted average price (€/MWh)
Wind Stations 3MW < P_{Wind} ≤ 50 MW	300	**176,39**	14	308,68	14	308,68	**7**	**170,93**	336	**90**	71,93	68,18	**69,53**
			Συμμετοχή στην Ηλεκτρονική δημοπρασία			308,68							
Wind Stations 3MW < P_{Wind} ≤ 50 MW	229	**160,94**	14	281,65	14	281,65	**8**	**159,65**	362	**79,77**	65,37	55	**58,58**
			Συμμετοχή στην Ηλεκτρονική δημοπρασία			281,65							

July 2018

21,5 €/MWh (22,74%)

December 2018

21,2 €/MWh (-26,56%)

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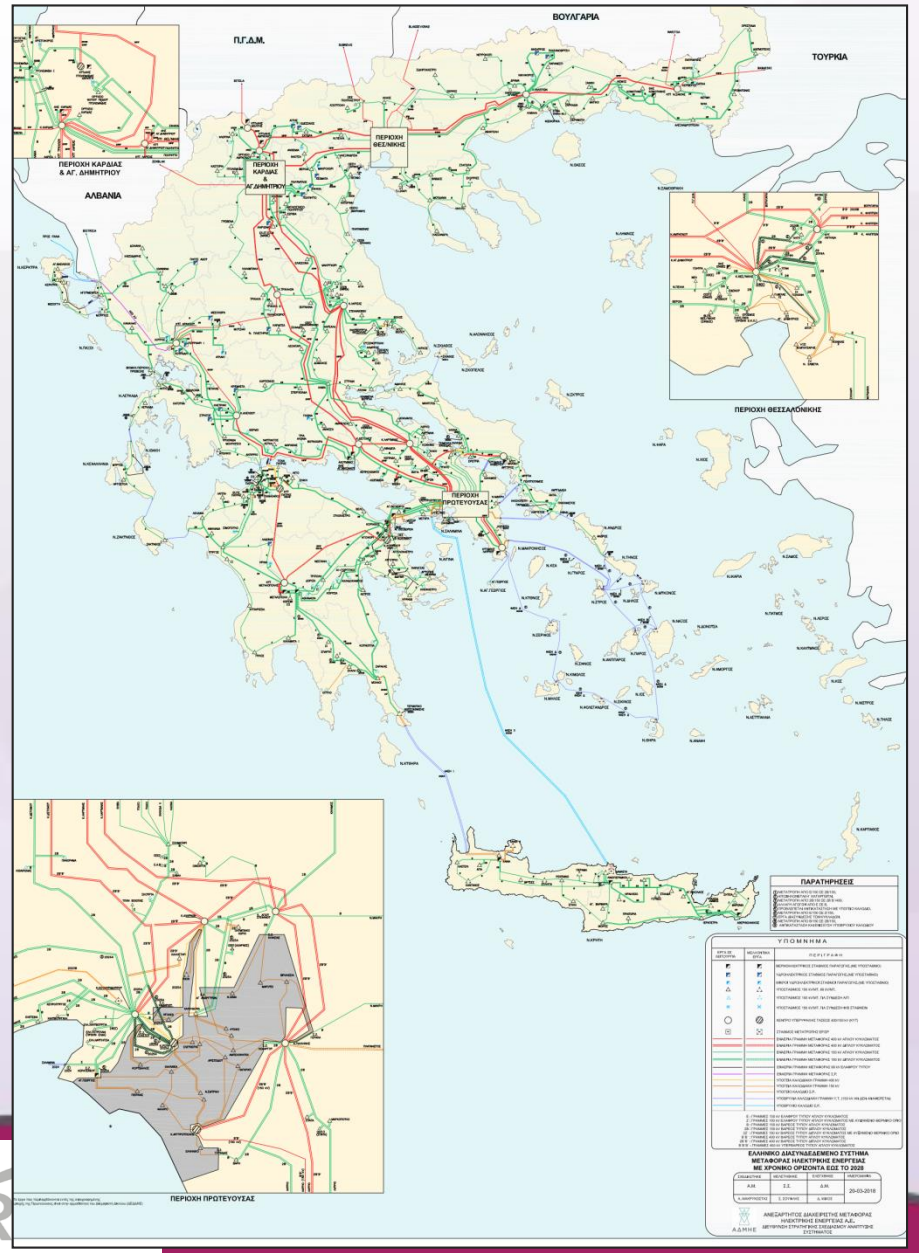
2.7 Key factor: Interconnections with Mainland

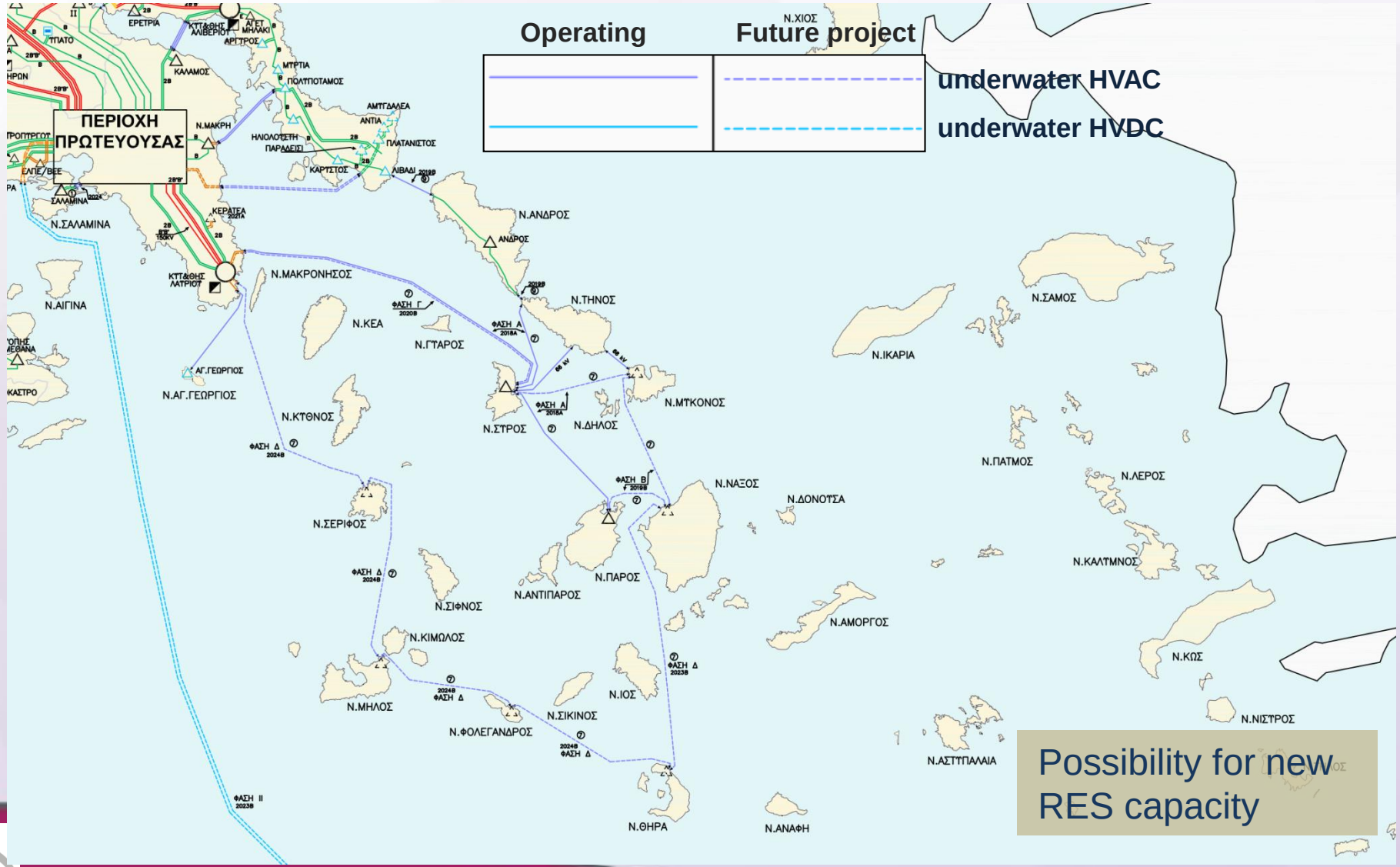


Hellenic Interconnected System

TSO's planning for grid connection up to 2029

- The Interconnection of Dodecannise is already on 10y Plan of TSO (under public consultation) for the period 2020-2029, after the opinion of the Specific Committee for the Interconnections which was established be RAE on Dec. 2015 (President: Prof. Michael Papadopoulos).
- Under Analysis the interconnection of North Aegean Non Interconnected Islands.

2.7 Cyclades interconnection



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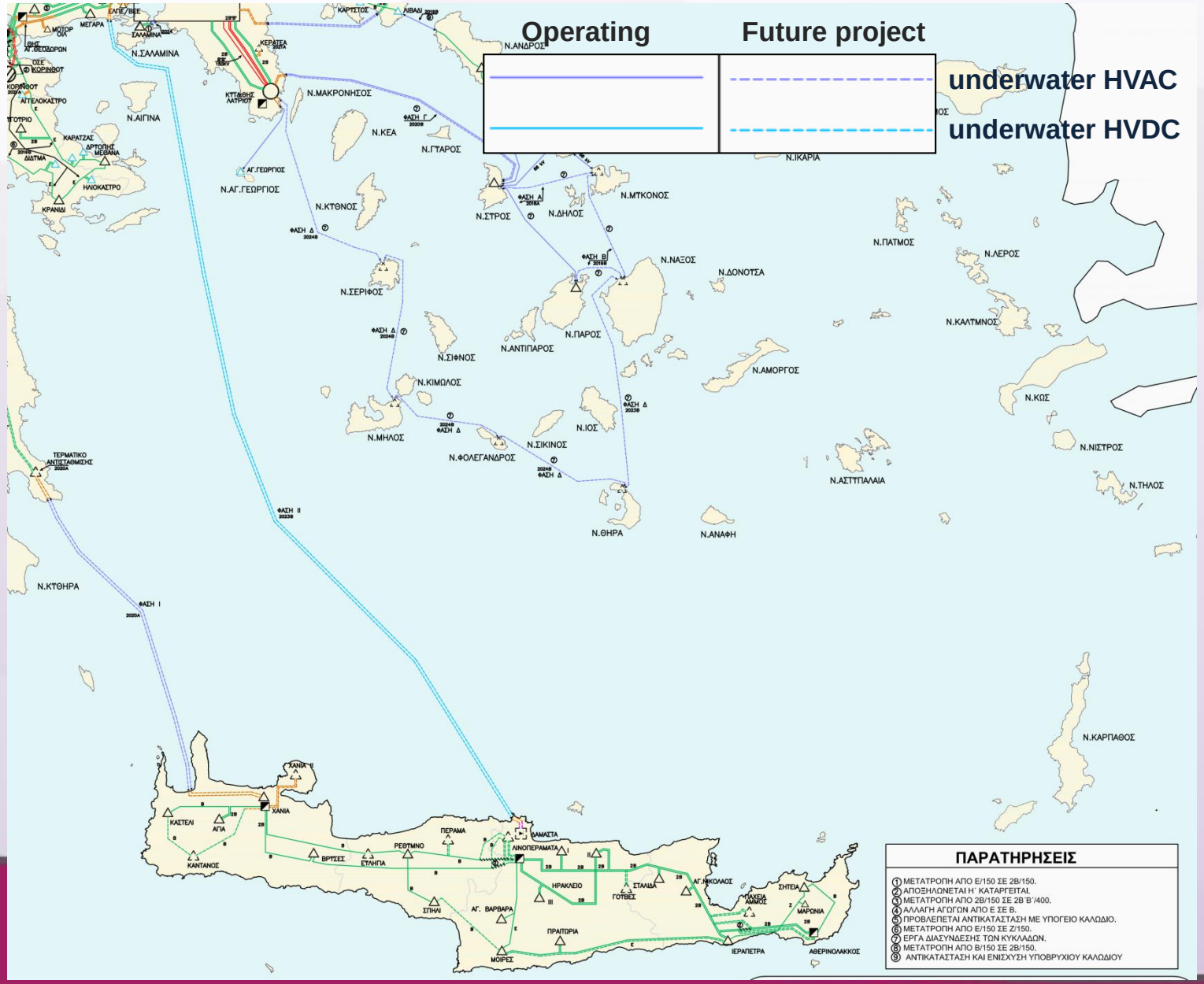
2.8 Crete Interconnection



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Thoughts of the Greek Regulator

Thought 1 – Further analysis

- A specific study for the floating technology finished by the Greek Regulator (2018).
- This technology is becoming mature and the cost is decreasing significantly.

Thought 2 – Long term energy planning (2030-2050)

- We need a significant amount of new RES to catch the targets of 2030 and then the 2050 (full decarbonization)
- The offshore wind parks will be a sector with future in Greece to catch the National targets in areas with great wind velocity (Aegean sea)
- **RAE will prepare a proposal to the Ministry of Energy** in order to proceed with specific steps in a new legislation framework which will be simplified, taking into account all the particularities of the Aegean sea and the International experience on Offshore technology, and drive to a new direction and open a new road for the development of the Offshore sector.

Thank you for your Attention!

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