

Energy Efficiency Indicators in Greece

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The Recast Energy Efficiency Directive (EED)

- ❑ The **recast Energy Efficiency Directive (EU) 2023/1791** entered into force on October 10, 2023.
- ❑ Changes from the previous Directives 2018/2002 and 2012/27/EU include the following:

EU legally-binding target to reduce the EU's final energy consumption by 11.7% by 2030 (relative to the 2020 reference scenario)

Increase annual energy savings from 0.8% (at present) to 1.3% (2024-2025), then 1.5% (2026-2027) and 1.9% from 2028 onwards

Oblige MSs to prioritise vulnerable customers and social housing within the scope of their energy savings measures

Introduce an annual energy consumption reduction target of 1.9% for the public sector

Extend the annual 3% buildings renovation obligation to all the levels of public administration

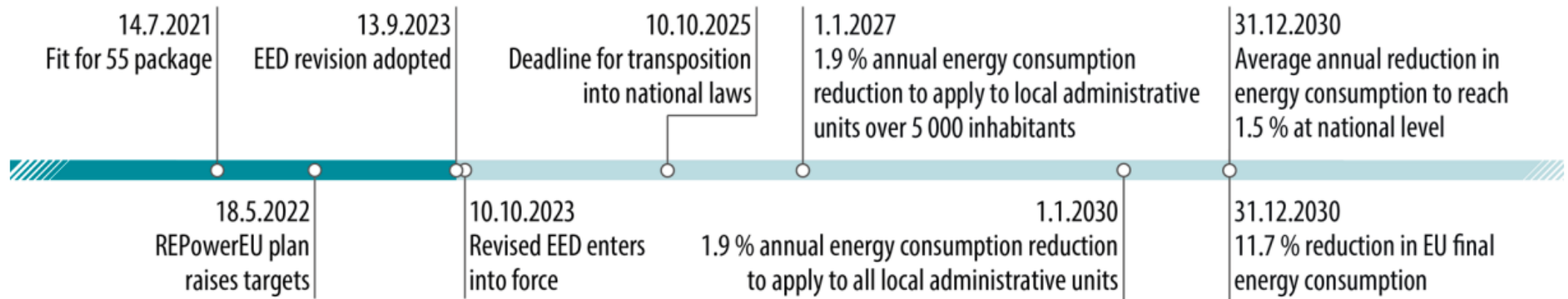
Introduce a different approach, based on energy consumption, for business to have an energy management system or to carry out energy audits

Bring in a new obligation to monitor the energy performance of data centres, with an EU-level database collecting and publishing data

Promote local heating & cooling plans in larger municipalities

Progressively increase the efficient energy consumption in heat or cold supply, also in district heating

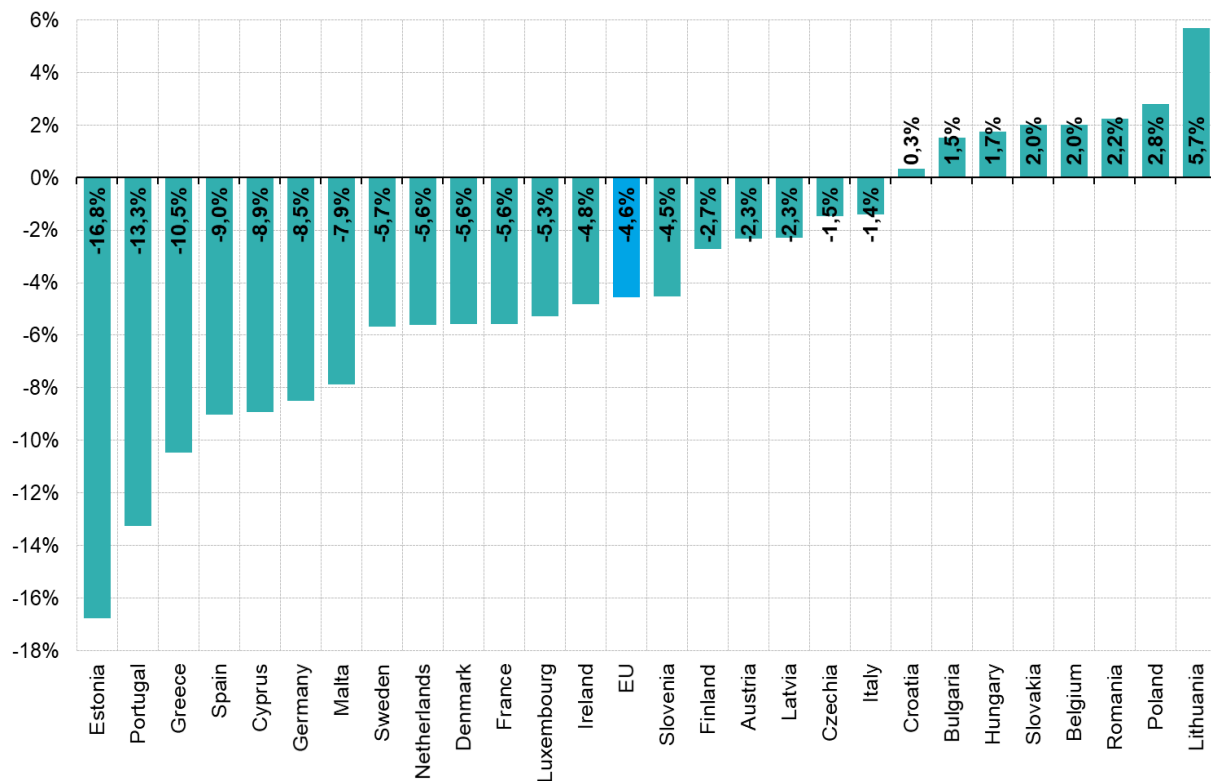
The Recast EED: Implementation Timeline



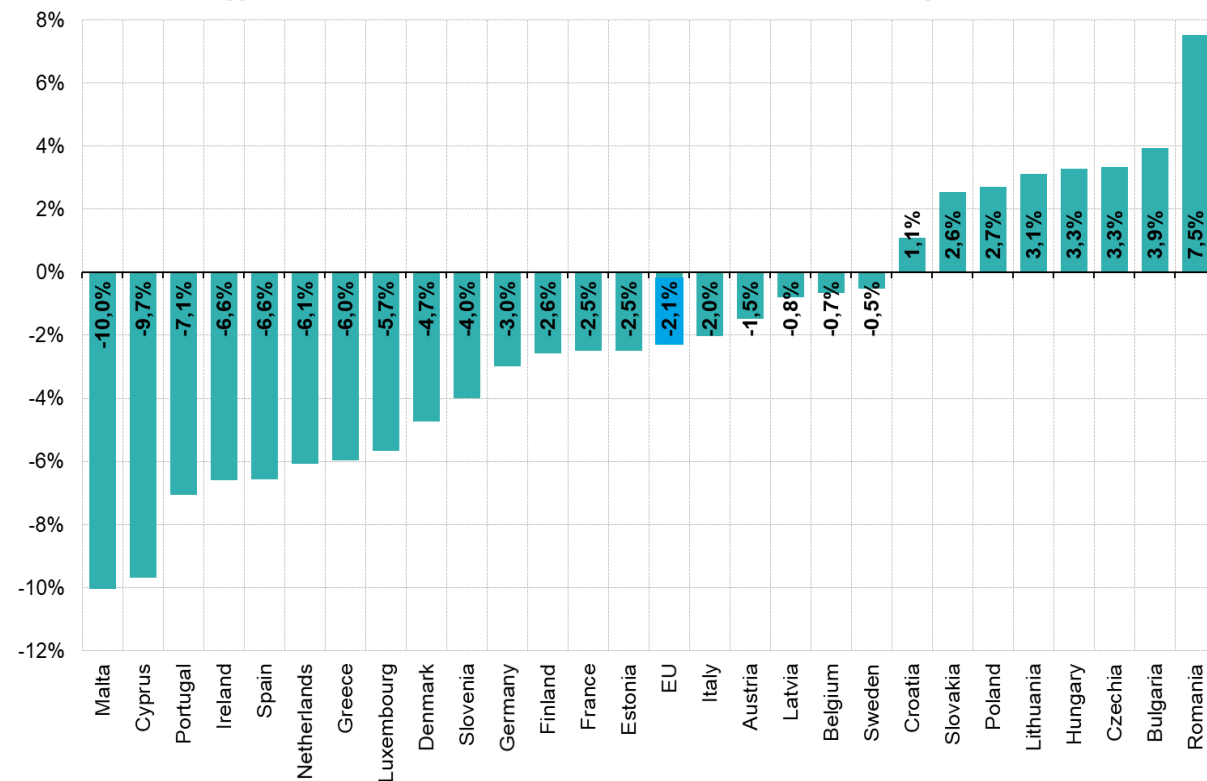
Source: European Commission

2021 Primary and Final Energy Consumption Compared with 2017-2019 Average

2021 primary energy consumption compared with 2017-2019 average



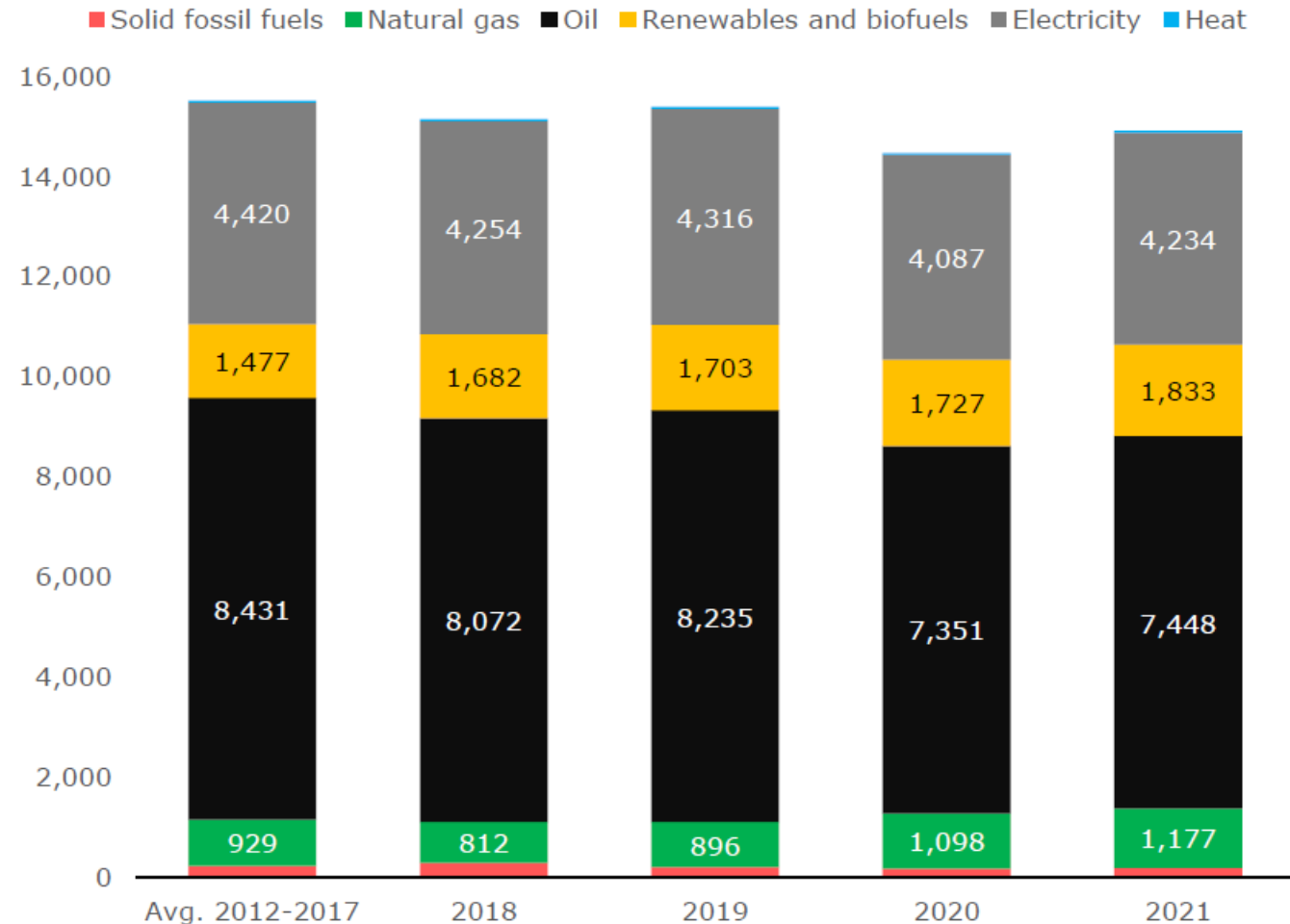
2021 final energy consumption compared with 2017-2019 average



Source: Eurostat (online data code: nrg_ind_eff)

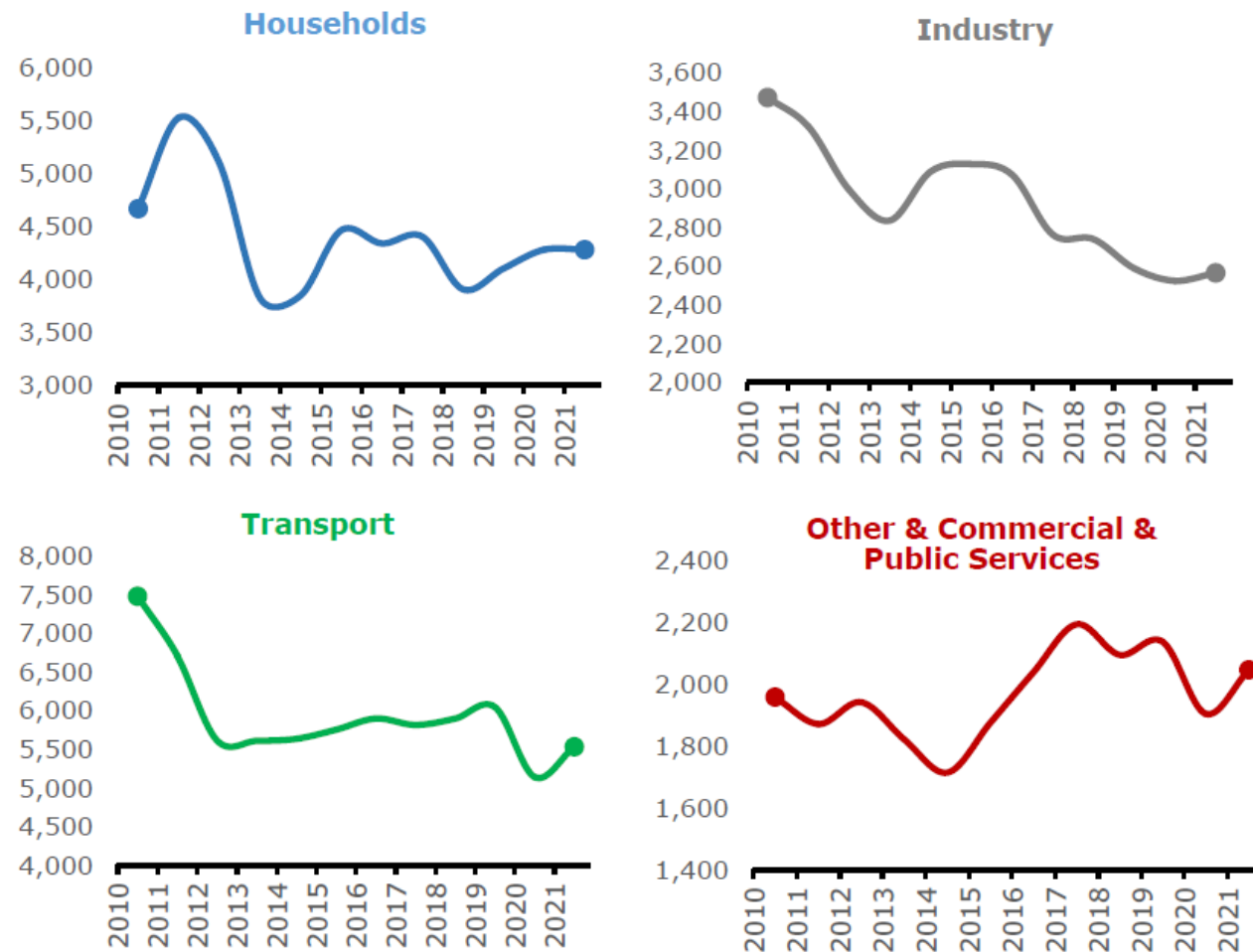
Source: Eurostat (online data code: nrg_ind_eff)

Final Energy Consumption by Product in Greece (ktoe), [Avg. 2012-2017 up to 2021]



Source: Eurostat

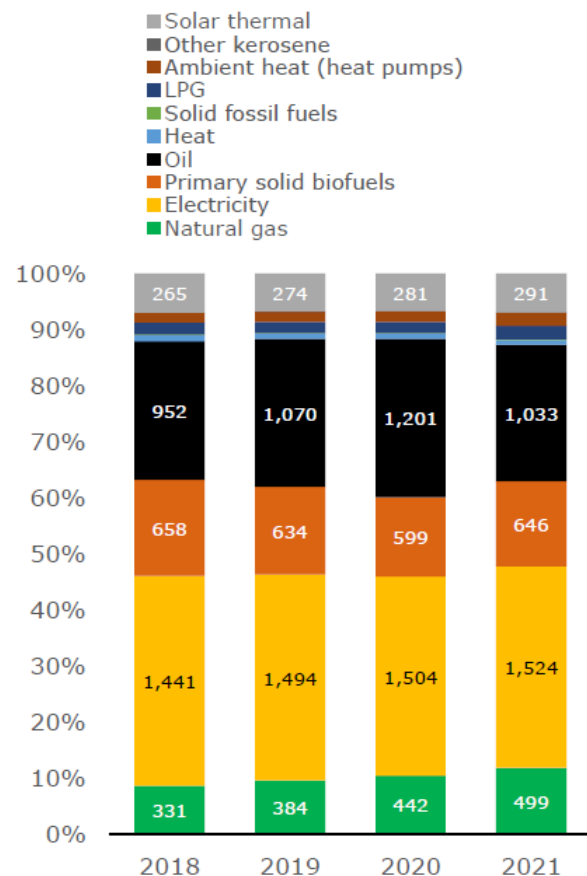
Final Energy Consumption per Sector in Greece (ktoe), 2010-2021



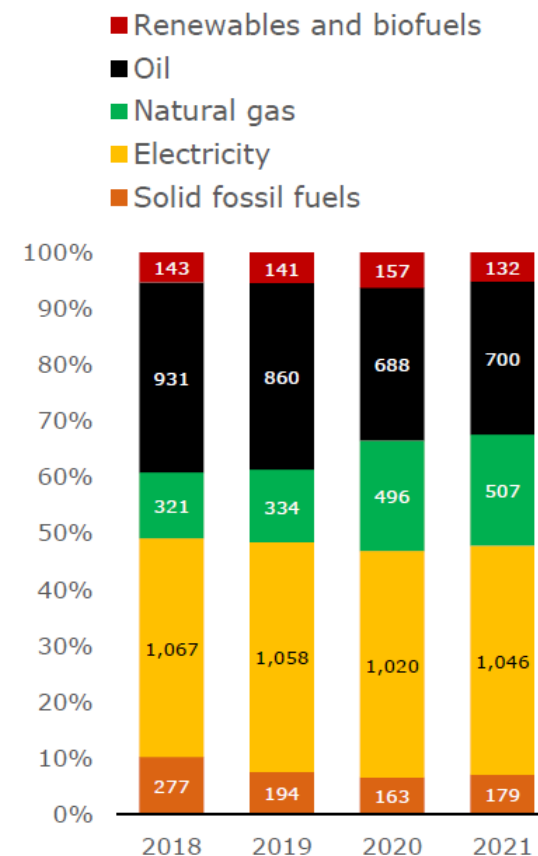
Source: Eurostat

Final Energy Consumption in Households and in Industry by Fuel in Greece (ktoe), 2018-2021

Final Energy Consumption in Households by Fuel in Greece (ktoe), [2018-2021]



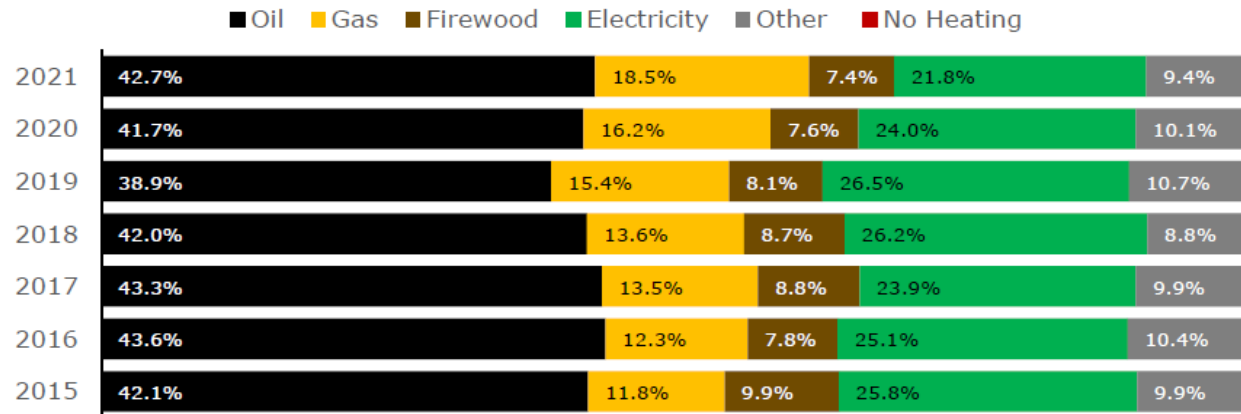
Final Energy Consumption in Industry by Fuel in Greece (ktoe), [2018-2021]



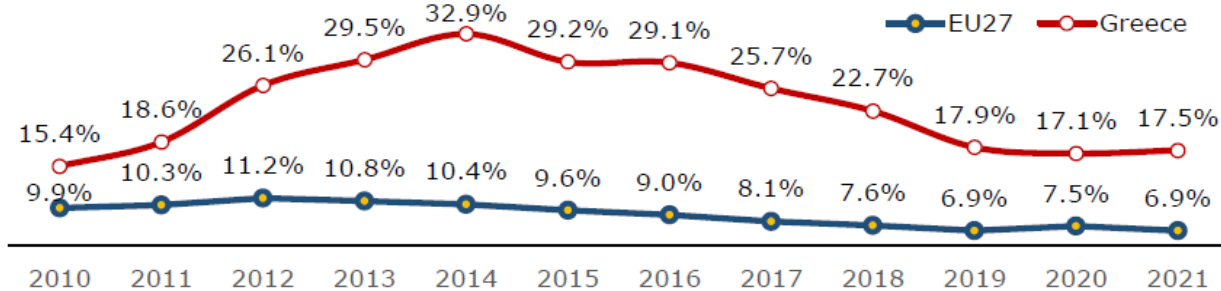
Source: Eurostat

Energy Poverty is on the Rise in Greece

Percentage Distribution of Households by Type of Fuel Used for Heating in Greece
(%), [2015 - 2021]

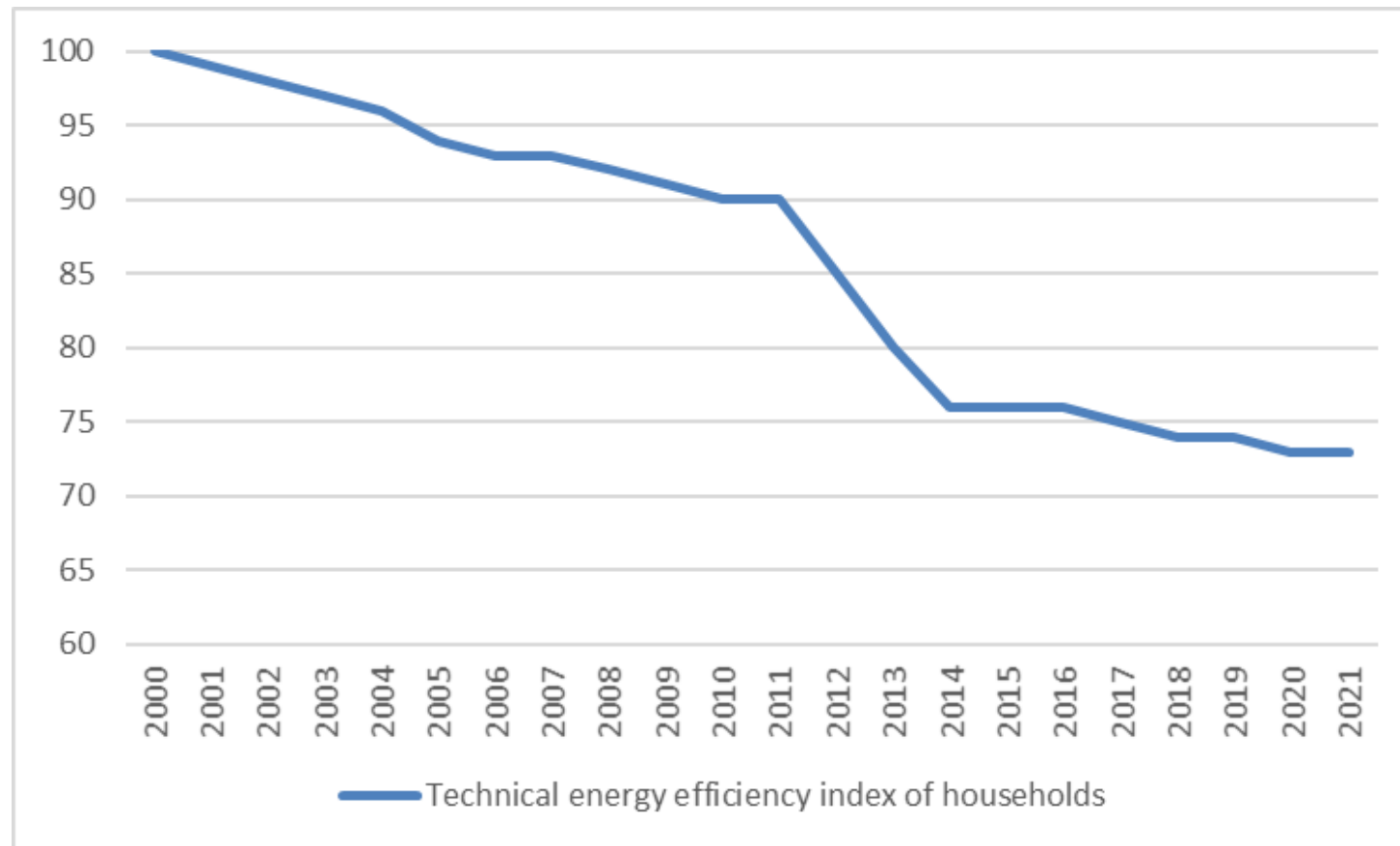


Share of Population Unable to Keep Home Adequately Warm in Greece and EU-27
(%), [2010 - 2021]



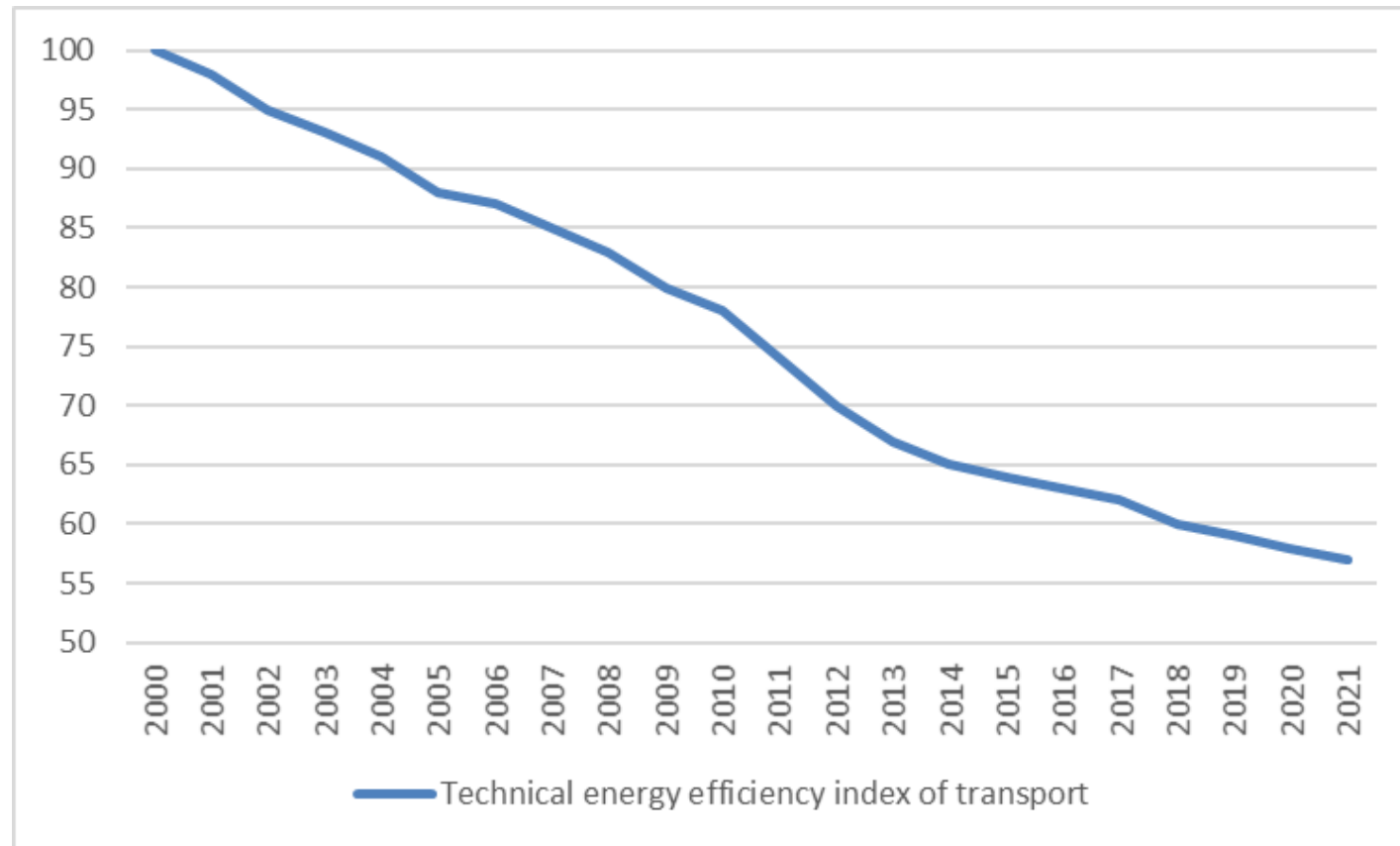
Sources: ELSTAT, Eurostat

Energy Efficiency Index in Greece's Residential Sector, 2000-2021



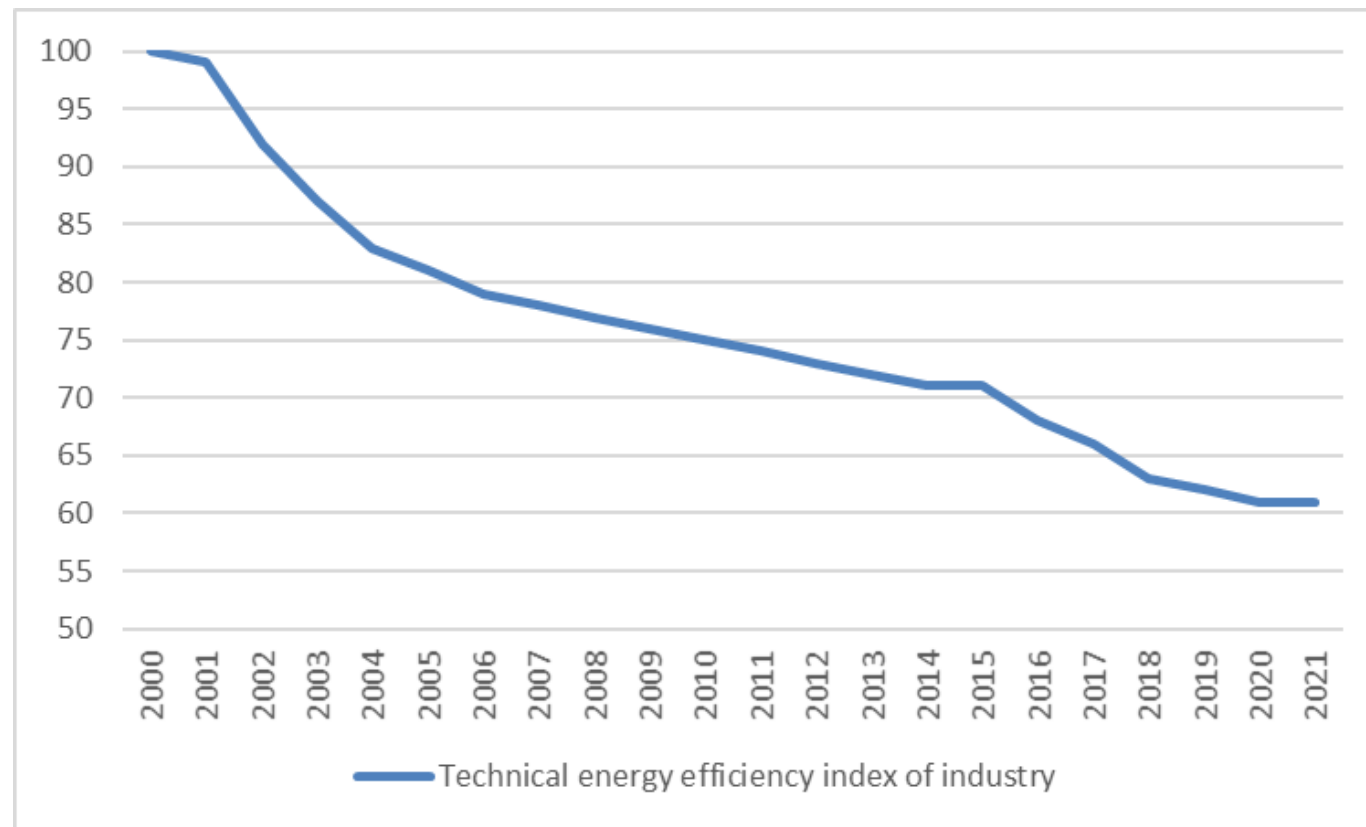
Source: ODYSSEE

Energy Efficiency Index in Greece's Transport Sector, 2000-2021



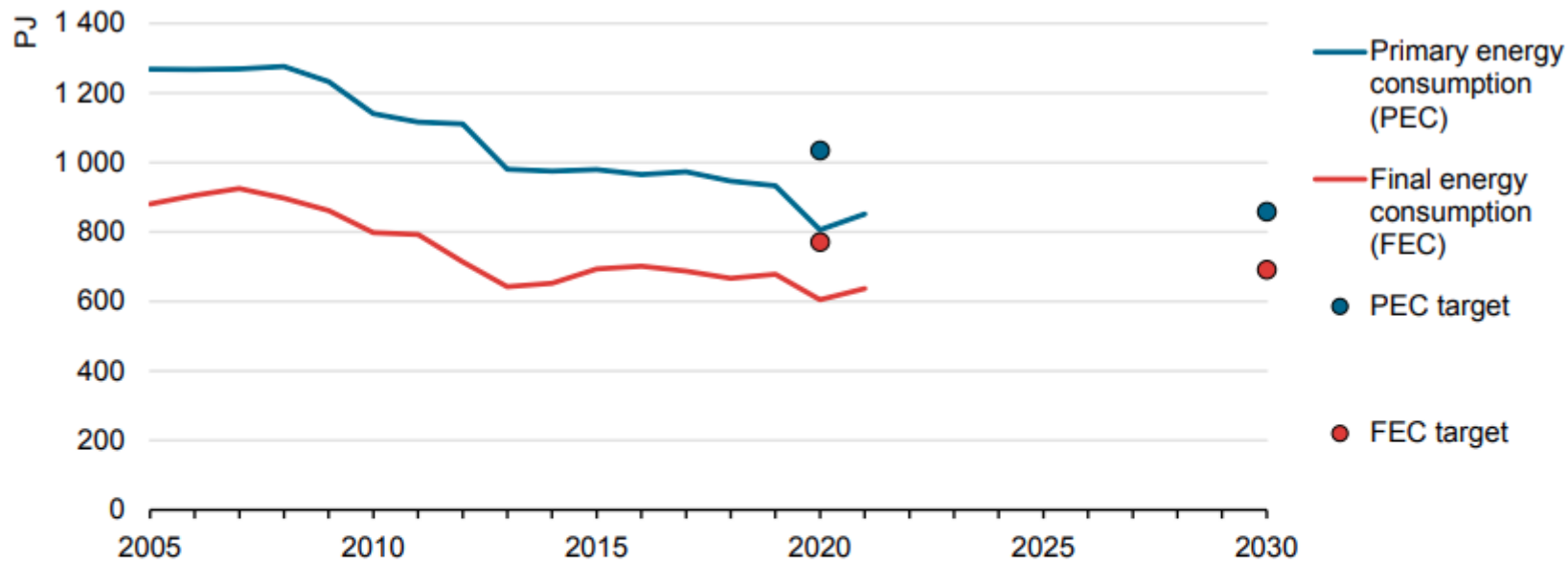
Source: ODYSSEE

Energy Efficiency Index in Greece's Industrial Sector, 2000-2021



Source: ODYSSEE

Greece's 2020 and 2030 Energy Efficiency Targets and Status, 2005-2021



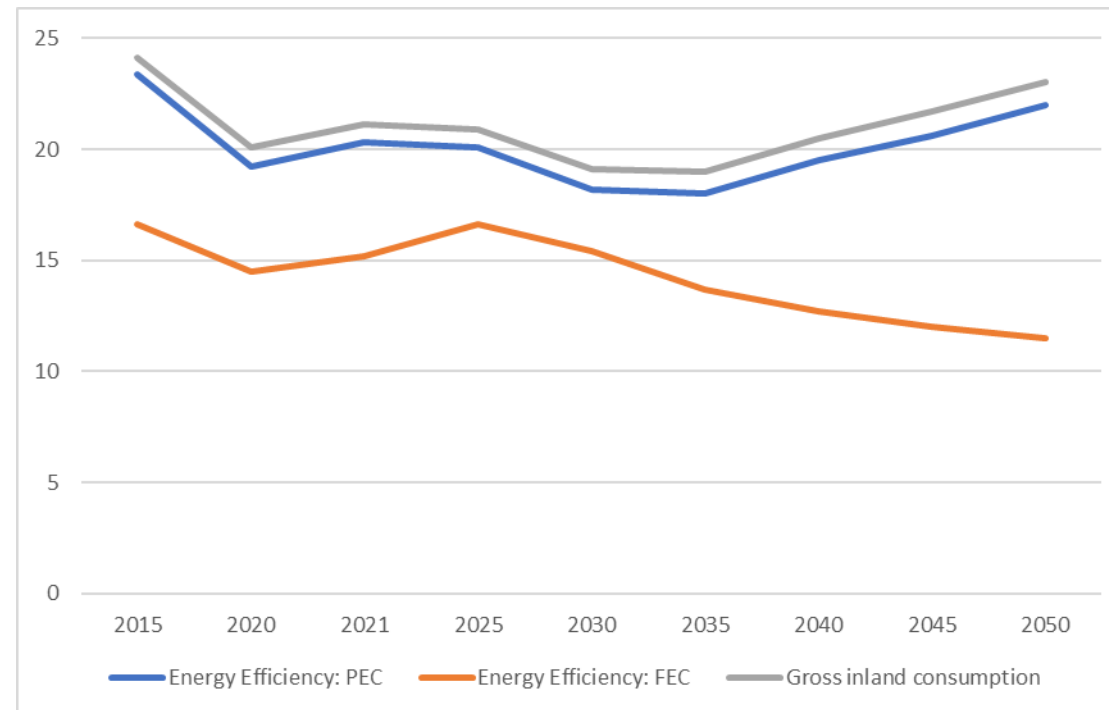
IEA.CC BY 4.0.

	2020 status	2021 status	2020 targets	2030 targets
Primary energy consumption	806 PJ	851 PJ	1 034 PJ	858 PJ
Final energy consumption	605 PJ	637 PJ	770 PJ	690 PJ

Source: IEA based on data from Eurostat (2022).

Progress to Energy Efficiency Targets in Greece

Mtoe	Statistical data			Projections					
	2015	2020	2021	2025	2030	2035	2040	2045	2050
Energy Efficiency: PEC	23.4	19.2	20.3	20.1	18.2	18.0	19.5	20.6	22.0
Energy Efficiency: FEC	16.6	14.5	15.2	16.6	15.4	13.7	12.7	12.0	11.5
Gross inland consumption	24.1	20.1	21.1	20.9	19.1	19.0	20.5	21.7	23.0



Source: Greece's Ministry of the Environment and Energy

Energy Efficiency in Greece – A General Overview of Actions by Sector



National Energy and Climate Plan



ATHENS, DECEMBER 2019

Buildings

- “Electra” programme (public buildings)
- “Save 2021, 2023” programme (residential buildings)
- “Savings at Home” programme (residential buildings)
- “Recycle-Change Device” programme (residential buildings)
- “PVs on the Roof” programme (households and farmers)
- “Recycle-Change Water Heaters” programme (residential buildings)
- “Save – Renovate for Young People” programme (residential buildings)

Transport

- “Charge Everywhere” programme
- “I Move Electric I and II” programme
- “Green Taxis” programme
- “e-Astypalea” programme

Industry

- “Produc-e Green” programme
- “Save-Business” programme
- “Green Businesses” programme
- “Support to Improve Energy Efficiency in Industrial Processes” programme
- “Energy Efficiency Improvement in SMEs” programme

Projections and Targets of the NECP for the Building Sector in Greece (Residential And Service Buildings)

	Statistical data		Projections					
	2021 (estimate)	2019 NECP for 2030	2025	2030	2035	2040	2045	2050
Residential sector								
Annual percentage of residences that are energy-efficiently upgraded	0.8%	1.0%	1.0%	1.4%	1.7%	1.5%	1.6%	1.7%
Average savings rate due to energy upgrade	34%	70%	49%	76%	69%	61%	51%	37%
% of total residences with extensive energy upgrade	7%	16%	12%	19%	25%	31%	37%	43%
Average residential energy consumption per sq. meter (kWh/m ²)	135	131	128	112	101	98	94	90
% of total residences with heat pumps for heating	8%	7%	12%	17%	34%	53%	71%	91%
Share (%) of electricity in residential energy consumption	36%	47%	38%	47%	53%	56%	59%	61%
Residential energy carbon footprint (tCO ₂ /toe)	1.11	0.69	1.00	0.69	0.29	0.10	0.01	0.01
Tertiary sector								
Annual percentage of tertiary buildings that are energy-efficiently upgraded	0.4%	0.6%	0.6%	0.8%	0.7%	0.6%	0.6%	0.6%
% of newly built and energy upgraded tertiary buildings	40%	40%	47%	53%	60%	66%	72%	78%
% of tertiary buildings with heat pumps for heating	55%	60%	65%	69%	76%	84%	89%	90%
Energy per unit of added value in the tertiary buildings (toe/M€ of added value)	16.2	14.8	15.3	14.3	12.7	11.0	9.8	8.8
Energy carbon footprint in the tertiary buildings (tCO ₂ /toe)	0.60	0.22	0.66	0.49	0.19	0.04	0.00	0.00

Source: Greece's Ministry of the Environment and Energy

Projections and Targets of the NECP for the Climate Performance in the Road Transport Sector in Greece

	Statistical data		Projections					
	2021 (estimate)	2019 NECP for 2030	2025	2030	2035	2040	2045	2050
Energy efficiency of passenger transport (toe/million of pkm)	30.9	29	27.8	23.4	19	15.6	13.3	11.7
Energy efficiency of freight transport (toe/million tonne-km)	42.2	39.4	37.8	34.3	31	27	23.7	21.1
Passenger-km of electric vehicles as % of the total	0%	12%	3%	20%	50%	72%	87%	98%
Tonne-km of means of transport that use electricity or hydrogen as % of the total	0%	0%	0%	3%	10%	23%	44%	61%

Source: Greece's Ministry of the Environment and Energy

Energy Efficiency in Greece's Industrial Sector

Energy Audit
Platform

Targeted Energy
Saving Programmes
in Companies and
in the Industry

The Vital Role of Greece's Energy Efficiency Obligation Scheme (EEOS)

Table 19: Setting the energy savings objective under Article 7 of Directive (EU) 2018/2002.

Year	Energy savings on an annual basis (Ktoe)										Cumulative savings	
2021	132.7											133
2022	132.7	132.7										265
2023	132.7	132.7	132.7									398
2024	132.7	132.7	132.7	132.7								531
2025	132.7	132.7	132.7	132.7	132.7							664
2026	132.7	132.7	132.7	132.7	132.7	132.7						796
2027	132.7	132.7	132.7	132.7	132.7	132.7	132.7					929
2028	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7				1,062
2029	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7			1,194
2030	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7	132.7		1,327
Total											7,299	

Table 20: Mix of policy measures to attain the objective under Article 7 of Directive (EU) 2018/2002.

No	Policy measure	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total new EU (Ktoe)	Total cumulative EU (Ktoe)
1	Energy upgrading of residential buildings	52	52	52	52	52	52	52	52	52	52	523	2,878
2	Energy upgrading of public buildings	4	4	4	4	4	4	4	4	4	4	38	208
3	Energy upgrading of tertiary sector buildings and industrial plants	8	8	8	8	8	8	8	8	8	8	78	427
4	Improvement in energy efficiency through energy service companies	4	4	4	4	4	4	4	4	4	4	36	196
5	Energy managers in public buildings	39	39	39	0	0	0	0	0	0	0	116	1,042
6	Energy upgrading of pumping equipment	12	12	12	0	0	0	0	0	0	0	35	315
7	Energy upgrading of street lighting	7	7	7	0	0	0	0	0	0	0	20	180
8	Development of transport infrastructures	5	5	5	5	5	5	5	5	5	5	48	264
9	Promotion of alternative fuels in road transport	6	6	6	6	6	6	6	6	6	6	60	329
10	Energy efficiency obligation schemes	66	66	66	66	66	66	66	66	66	66	661	1,460
Total new EU (Ktoe)		201	201	201	144	144	144	144	144	144	144	1,614	7,299
Total cumulative EU on an annual basis (Ktoe)		201	383	528	617	706	795	884	973	1061	1150		

Greece failed to achieve the energy savings target over 2017-2020

Source: Greece's Ministry of the Environment and Energy

Financing Energy Efficiency Programmes in Greece – RRF (I)

- Greece was among the first EU member states to submit a plan in April 2021. The plan (Greece 2.0) is one of the largest funding requests to the Recovery and Resilience Facility (€30.5 billion), equivalent to 16.7% of Greece's 2019 GDP.



Source: Greece's RRP

Financing Energy Efficiency Programmes in Greece – RRF (II)

- ❑ **With the revision of the plan (Greece 2.0), the energy efficiency programmes for households, businesses and the tertiary sector are expected to further supported financially, among others.**
- ❑ The investments to be financed in the field of energy efficiency in Greece include **five different sub-programmes**, which are:

Energy renovation of residential buildings through the provision of subsidies

Energy renovation of non-residential public and private buildings through the provision of subsidies and low-interest loans

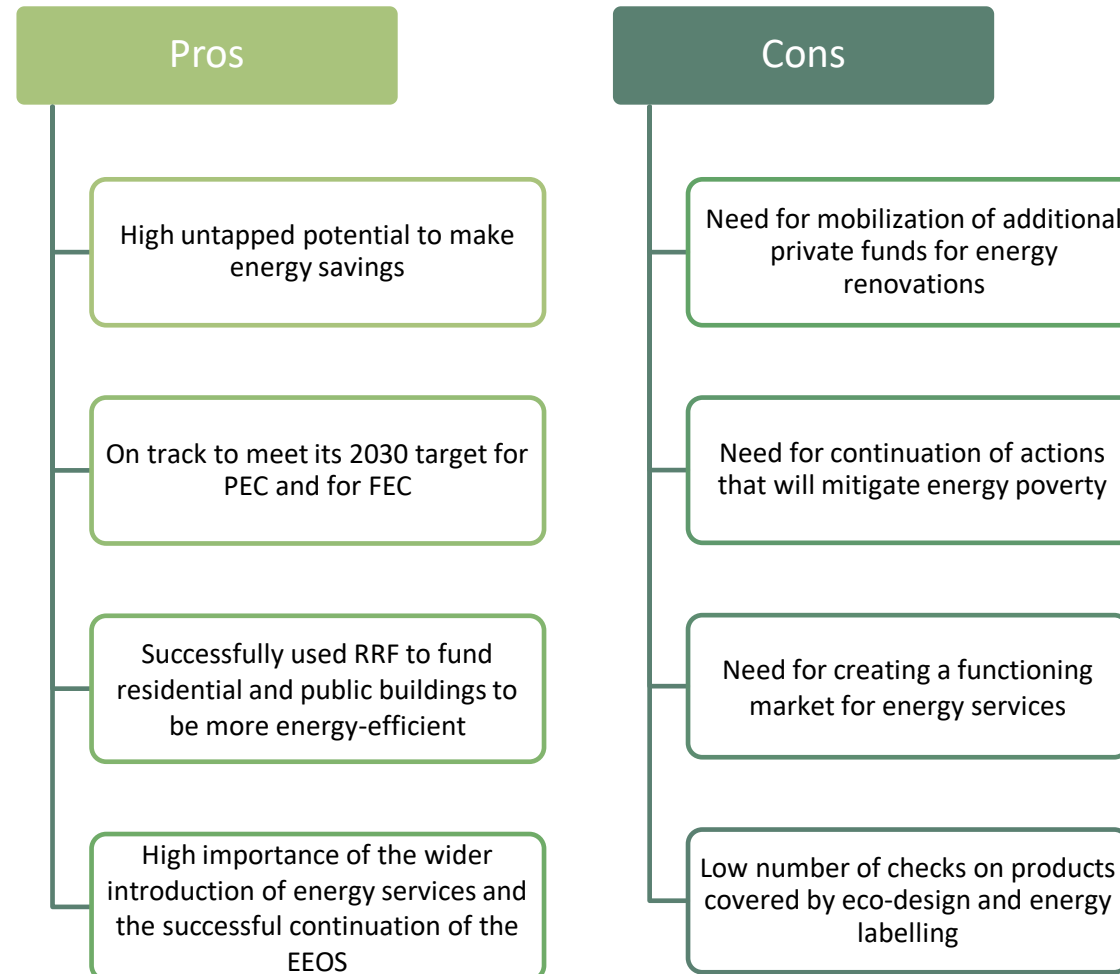
Increase of solar PV systems for self-consumption in residential buildings and in the agricultural sector through the provision of subsidies

Promotion of RES in residential buildings through funding for the installation of new RES systems for the production of hot water

Improvement of energy efficiency in the municipal water supply and sewage companies by replacing the existing electromechanical equipment in the wells with new and more energy efficient ones

Source: Greece's RRP

Indicative Pros and Cons in Greece's Energy Efficiency Sector



Indicative Policy Measures for the Improvement of Greece's Energy Efficiency Sector

Buildings

- Regulatory, tax and financial incentives to promote nZEBs
- Improvement of regulatory framework and strengthening of the role of energy managers for public buildings
- Use of tax and town planning incentives for implementing energy savings interventions in residential buildings and tertiary sector buildings (other than public buildings)

Transport

- Regulatory measures for energy savings in the transport sector
- Use of tax incentives to promote alternative fuels in transport
- Elaboration of sustainable urban mobility plans

Industry

- Financing programmes for improvement in the energy efficiency of industries and processors, including the promotion of EPCs
- Promotion of the relocation of industrial plants to industrial-business zones
- Promotion of central heat generation and distribution systems at an industrial-business zone level

Source: Greece's Ministry of the Environment and Energy

***Thank you for your
attention!!!***

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