

Energy Transition

Regulation vs Free Markets

Key Ingredients for Implementation in Europe and Greece

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Q1: The Key Ingredient

What drives energy transition: Regulation or Free Markets?

Verdict: Regulation initiates; Markets optimize.

But today, regulation is both the solution AND the problem.

REGULATION

- Creates the rules & corrects market failures
- Sets binding targets (42.5% RES by 2030)
- Prices externalities (carbon pricing)
- Current bottleneck: permitting, grid rules

FREE MARKETS

- Drives innovation & cost reduction
- Collapsed solar prices by 90%+
- Allocates capital efficiently
- Enables PPAs & merchant projects

The Sequencing Model

How Regulation and Markets work together



Where Europe & Greece Are Today

Stuck between Phases 3 and 4: Initial regulatory push worked. Markets responded. But administrative and regulatory capacity has to always keep pace with market momentum.

The binding constraint is not ambition, capital, or technology — it's regulatory execution speed.

Q2: Most Important Reforms Already Made

EUROPEAN UNION

Fit for 55 + REPowerEU

- Binding 42.5% RES target by 2030
- ETS reform: halved emissions since 2005
- Russian gas: 45% → 13% (2021-2025)
- 17% gas demand reduction achieved
- Accelerated permitting rules
- CBAM for carbon leakage prevention

GREECE

Target Model + Licensing Reform

- Target Model (Nov 2020): EU market coupling
- Laws 4685/2020 & 4951/2022: RES licensing
- 4.7 GW storage framework (2023-25)
- Crete-Attica interconnection: 1 GW link
- First Hydrogen Law (July 2025)
- Result: ~50% RES in electricity generation

Greece: Wholesale Electricity Market Reforms

Reforms Implemented

- Day Ahead Market – Go Live (1.11.2020)
- Market Coupling with Italy (15.12.2020)
- Market Coupling with Bulgaria (11.5.2021)
- Intraday – CRIDAs with Italy/Slovenia (20.9.2021)
- Crete interconnection hybrid model (1.11.2021)
- Pan-European XBID trading (29.11.2022)
- Pan-European IDAs (13.6.2024)
- RES & DR in Balancing Market (2022-2023)
- PPAs platform from HEnEx (2.12.2024)
- PICASSO connection for aFRR (18.3.2025)
- 15-min MTU for DAM/IDM (1.10.2025)

Reforms to be Implemented

- Storage in wholesale markets (2026)
- MARI connection for mFRR (2026)
- Energy Community coupling (2026-27)
- TSO-DSO coordination (ongoing)

Under Consideration:

- Capacity mechanism & co-optimization
- Flow-Based Market Coupling (FBMC)

Infrastructure Priorities:

- Grids, DR, Storage, EVs, Data centers
- Green hydrogen, Cold ironing
- Network flexibility (FACTS, STATCOM)

Q2: Critical Reforms Still Needed

EUROPEAN UNION

Energy Taxation Directive

Requires unanimity; stalled since 2021

Permitting & Grid Expansion

7-9 years for wind permits; 5+ year queues

Grid Infrastructure Investment

Transmission expansion and cross-border interconnection financing rules

Cross-border Cost Allocation

Who pays for shared infrastructure?

GREECE

Storage Adequacy

Need 8 GW vs 4.7 GW allocated

Grid Modernization & Flexibility

Grids, offshore, DR, EVs, smart infrastructure (>1 TWh curtailed in 2025)

Energy affordability

Reduce energy costs for consumers & businesses (including Energy Intensive industries)

Domestic Gas Exploration

Framework for hydrocarbon development

Key Takeaways

1 Regulation creates the playing field; markets compete on it. Neither works alone.

2 The EU's Fit for 55 and Greece's Target Model/RES licensing were transformational — but execution of critical infrastructure (grids, storage) and fast regulatory updates are now the bottleneck.

3 The urgent reforms needed: grid modernization, energy affordability, storage adequacy, and domestic energy resources