Policy and Regulatory Frameworks for Artificial Intelligence (AI) in the Energy Sector: Global Trends and Thailand's Path Forward

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Presentation Outline

- Global AI in Energy Trends
- Global Policy & Regulation
- Thailand’s AI Policy & Draft AI Act
- Thailand’s Energy Plan & Digital Policy
- AI & Smart Grid Integration
- AI Regulations & Incentives in Energy
- Conclusion and path forward

Global AI Trends in the Energy Sector

AI improves efficiency across the energy chain: generation, storage, distribution, and use.

AI helps forecast demand, manage renewables, and reduce costs.

IEA: AI could lower global power system costs by 10% by 2030.

Examples: Google’s AI data centers, China’s grid management AI, Japan’s Smart Community projects.

Why Policy and Regulation Matter

AI affects how energy is produced, priced, and distributed.

Risks include data misuse, cyber threats, and bias in decisions.

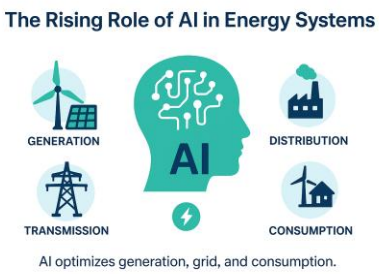
Policies ensure fairness, safety, and trust in AI-driven systems.

Governments worldwide are building AI rules for critical sectors.

International Overview – AI Policy Frameworks

- EU AI Act (2024): Risk-based approach for high-risk AI
- USA: Sector-driven, voluntary NIST AI Framework
- China: Algorithm regulation & cybersecurity focus
- Korea: integrates AI into Smart Grid 2023 Strategy
- Japan: 'Society 5.0' – human-centric AI

Thailand's National AI Policy and Draft AI Act



- National AI Strategy (2022–2027): encourages safe, responsible, and useful AI adoption.
- Draft AI Act by MDES – aligns with EU principles, focuses on risk management.
- Establishment of National AI Governance Center for oversight.
- Applications include energy forecasting, grid optimization, and industry energy savings.

Draft AI Act (Thailand)

Key Features of the Draft AI Act

- Risk-Based Classification
- Human Oversight
- Incident Reporting
- Local Legal Representation
- Sector-Specific Regulation

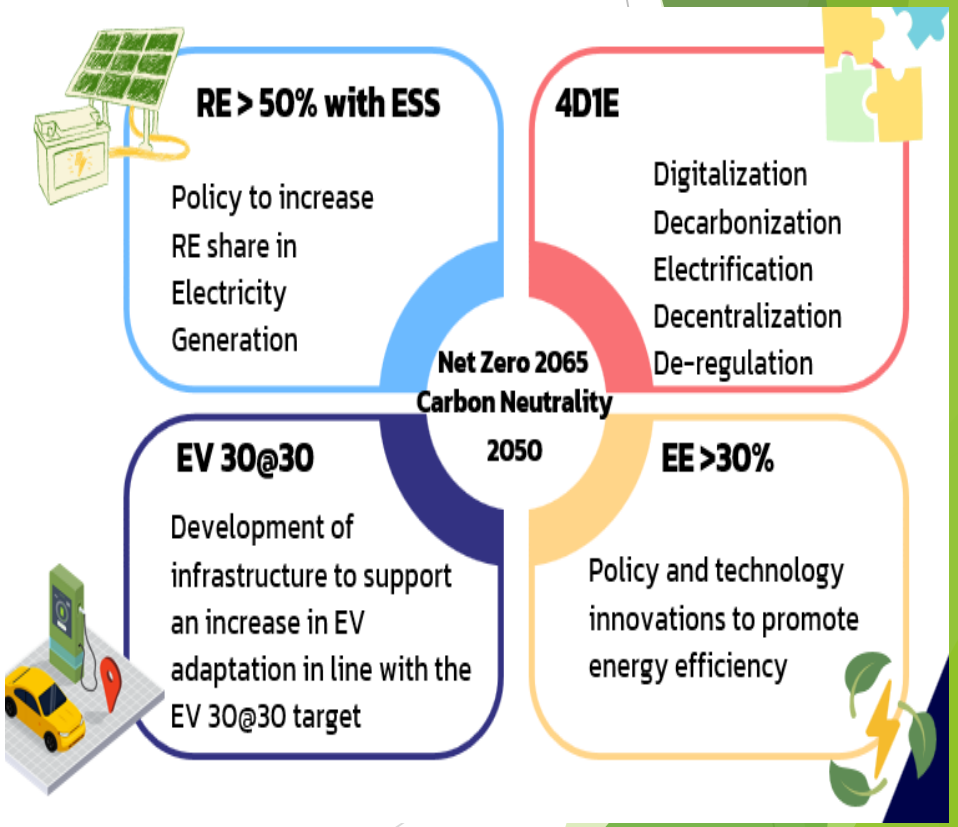
Energy Sector Implications

The Draft AI Act ensures these systems are:

- Secure from cyber threats.
- Transparent in how decisions are made.
- Ethically aligned.

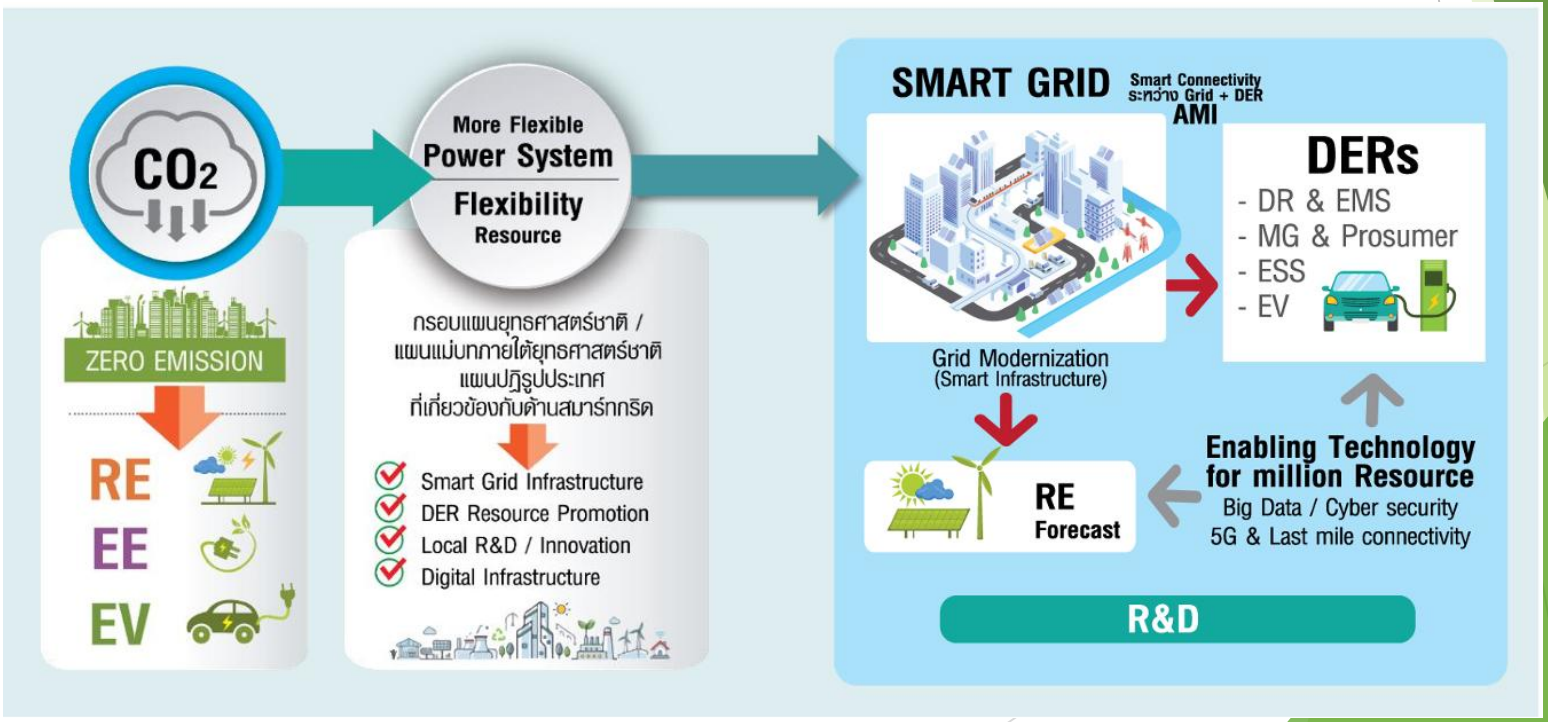
Global Alignment

THAILAND'S NATIONAL ENERGY PLAN: NEP



Smart grid development action plan

Vision : ***Promote infrastructures development and management of necessary resources in the power distribution system. For support the energy transition to a modern grid system to be more efficient and environmentally friendly.***



Thailand's energy Plans Promoting AI and digital Technologies

- AI for predictive maintenance & load forecasting
- Smart meter data analytics
- AI-based energy management & audits
- AI for demand-side management

AI Regulations & Incentives in Energy

ERC sandbox allows trial of AI and digital solutions in real conditions.

BOI offers tax incentives for AI in renewable energy, smart grid, and data analytics projects.

DEDE and EPPO support digital energy efficiency platforms using AI.

Government promotes workforce development for AI and digital skills in energy.

Thailand’s Path Forward

AI and digital technology are key to Thailand’s clean, secure, and affordable energy future.

Strong policy and regulatory alignment will ensure safe innovation.

Thailand is well positioned to be a regional leader in AI for sustainable energy.

Thank You

For Your Attention.

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