Best Practices in Implementing a Renewable Energy Strategy

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Renewable Energy Targets

IRENA
International Renewable Energy Agency

Countries with at least one type of national renewable energy target
Countries without targets
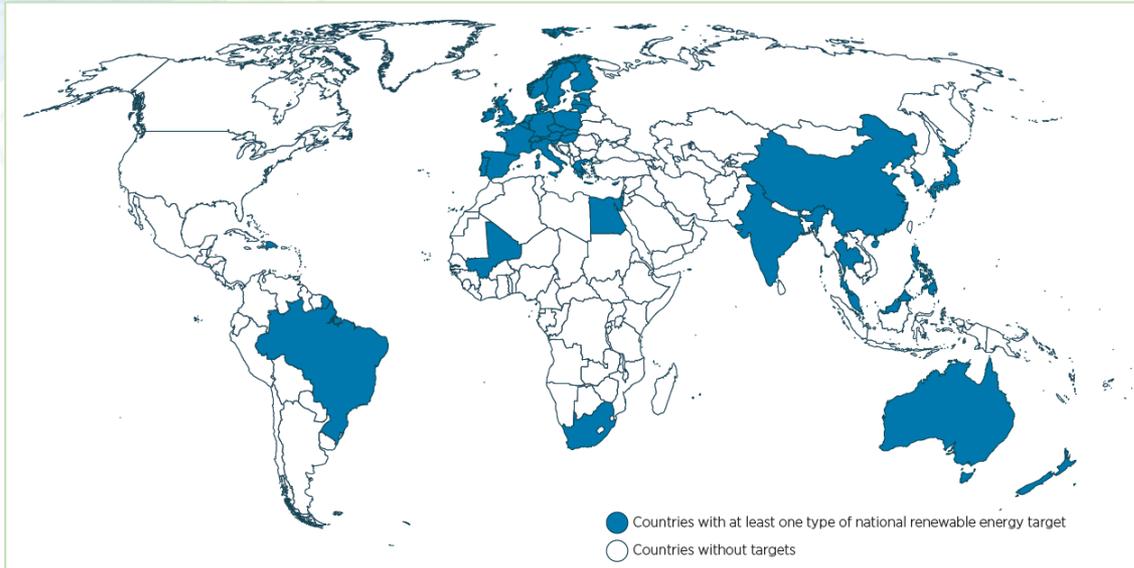
43 countries with RE targets in 2005

In 10 years …

164 countries

Countries with at least one type of national renewable energy target
Countries with targets at the sub-national level only
Countries without targets

Source: IRENA (2015), Renewable Energy Target Setting
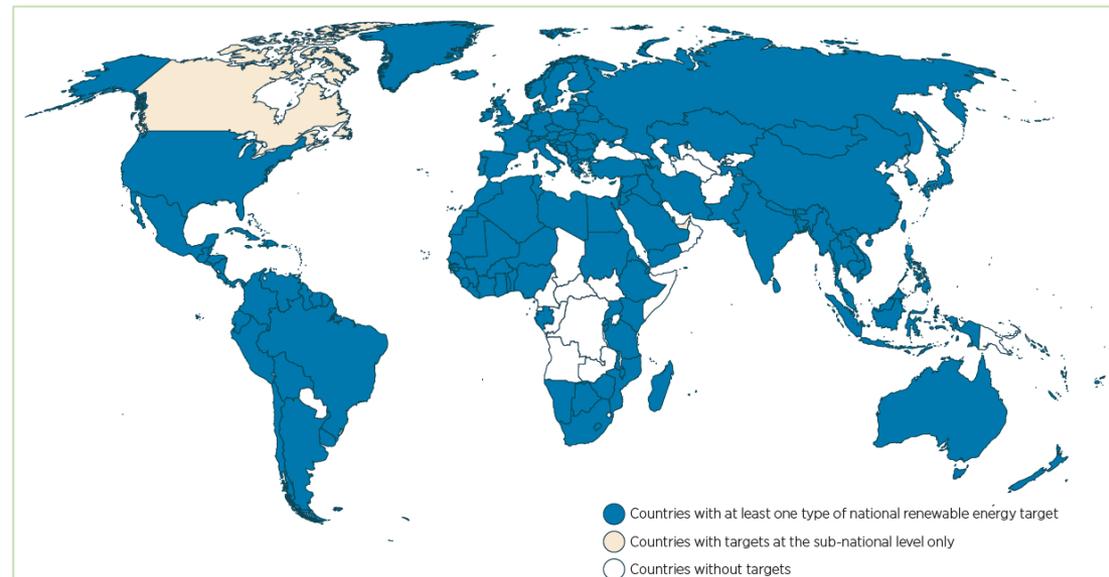
Best practice:
Good renewable energy targets

IRENA
International Renewable Energy Agency

Renewable Energy Target Setting

IRENA
International Renewable Energy Agency

JUNE 2015

- Quantitatively defined
- Long-term vision
- Consensus based
- Consistent with overall sector targets (including non-RE)

Source: IRENA (2015), Renewable Energy Target Setting
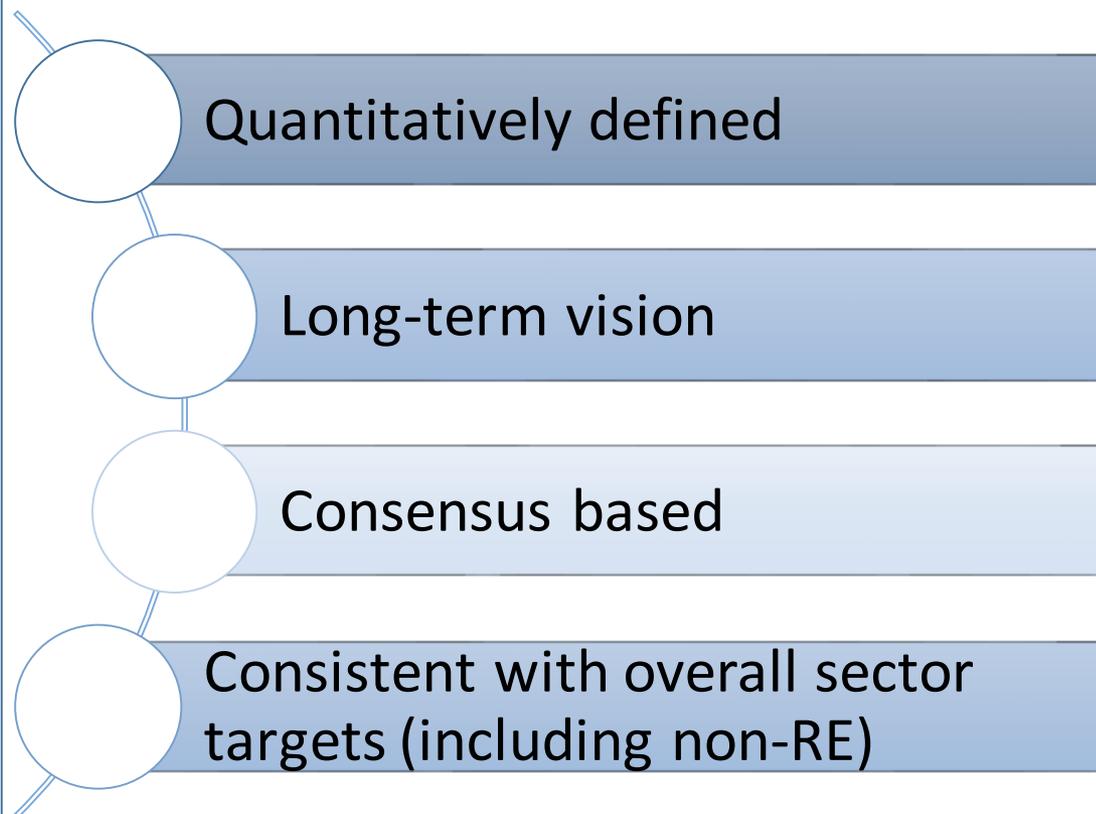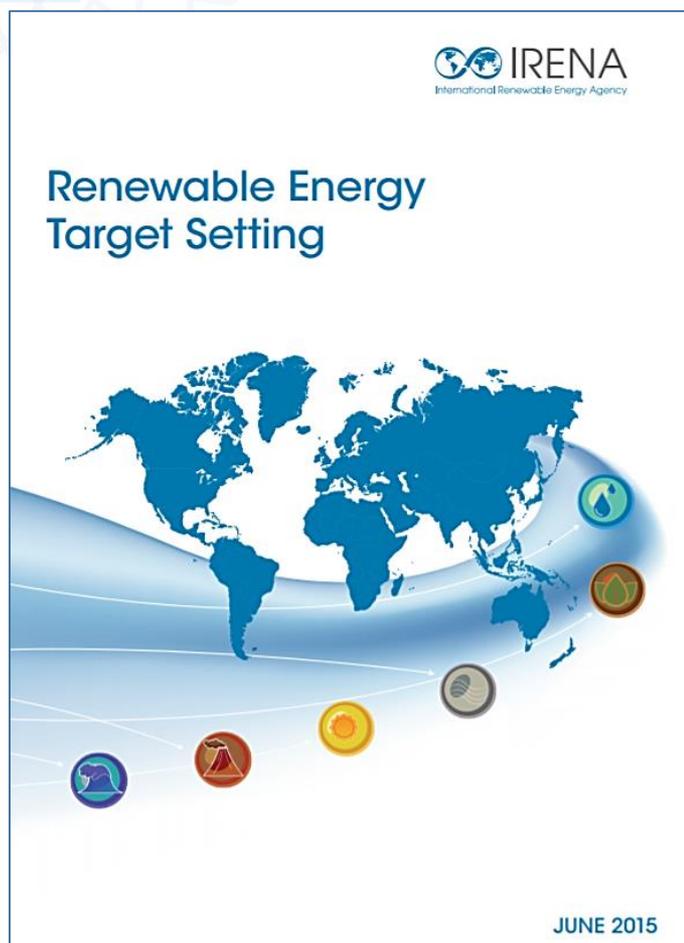
Wide range of policy measures and instruments

NATIONAL POLICY	REGULATORY INSTRUMENTS	FISCAL INCENTIVES	GRID ACCESS	ACCESS TO FINANCE[a]	SOCIO-ECONOMIC BENEFITS[b]
◆ Renewable energy target ◆ Renewable energy law/ strategy ◆ Technology-specific law/ programme	◆ Feed-in tariff ◆ Feed-in premium ◆ Auction ◆ Quota ◆ Certificate system ◆ Net metering ◆ Mandate (*e.g.*, blending mandate) ◆ Registry	◆ VAT/ fuel tax/ income tax exemption ◆ Import/export fiscal benefit ◆ National exemption of local taxes ◆ Carbon tax ◆ Accelerated depreciation ◆ Other fiscal benefits	◆ Transmission discount/ exemption ◆ Priority/ dedicated transmission ◆ Grid access ◆ Preferential dispatch ◆ Other grid benefits	◆ Currency hedging ◆ Dedicated fund ◆ Eligible fund ◆ Guarantees ◆ Pre-investment support ◆ Direct funding	◆ Renewable energy in rural access/cook stove programmes ◆ Local content requirements ◆ Special environmental regulations ◆ Food and water nexus policy ◆ Social requirements

Barriers are market specific

Cost barriers

Regulatory barriers

Market entry barriers

Technical barriers

Other barriers

Choice of technology

Maturity of technology

Market share

Rising/stable/falling energy use
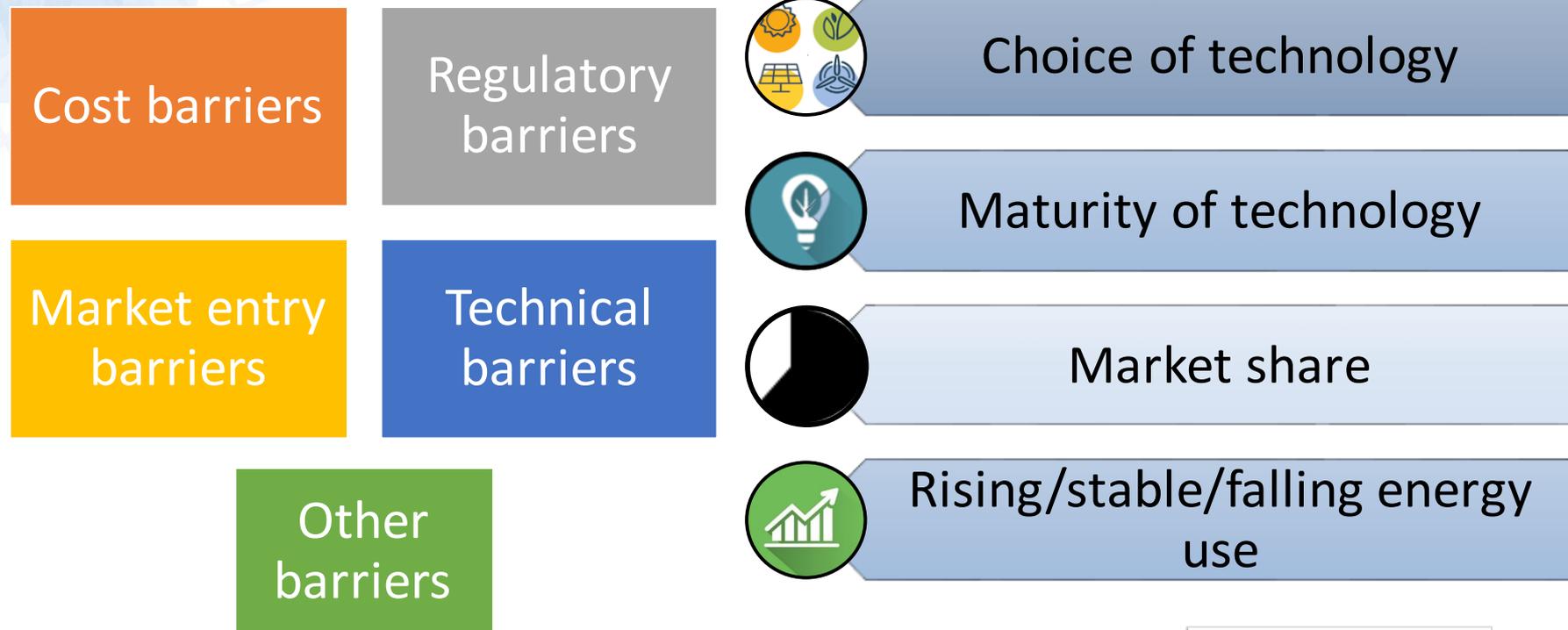
Best practice

- **Adaptation to dynamic market changes**
- **Learning by doing**

FIT and Auction

FITs

Strengths

- Limits the risks for investors also in emerging technologies
- Facilitates the entry of new players in the market
- Often funded by consumers and not exposed to public budget cuts
- Long term security drives technological development

Weaknesses

- Costly with high deployment rates and Generation is not exposed to electricity market prices
- Tariff setting and tariff adjustment process is challenging and complex

Auctions

Strengths

- Flexibility in the design according to conditions and objectives
- Permit real price discovery
- Provide greater certainty regarding prices and quantities
- Enable commitments and transparency

Weaknesses

- Are associated with relatively high transaction costs for both developer and auctioneer
- Risk of underbuilding and delays

Source:

Grid code for scaling up renewables

Best practices

1. Design a predictable and reliable grid code revision process.

2. Consult with all relevant stakeholders.

3. Anticipate requirements of a dynamically changing system.

4. Join regional initiatives to harmonize requirements and share resources.

5. Learn from other countries, but design the grid code to your country context.

SCALING UP VARIABLE RENEWABLE POWER: THE ROLE OF GRID CODES
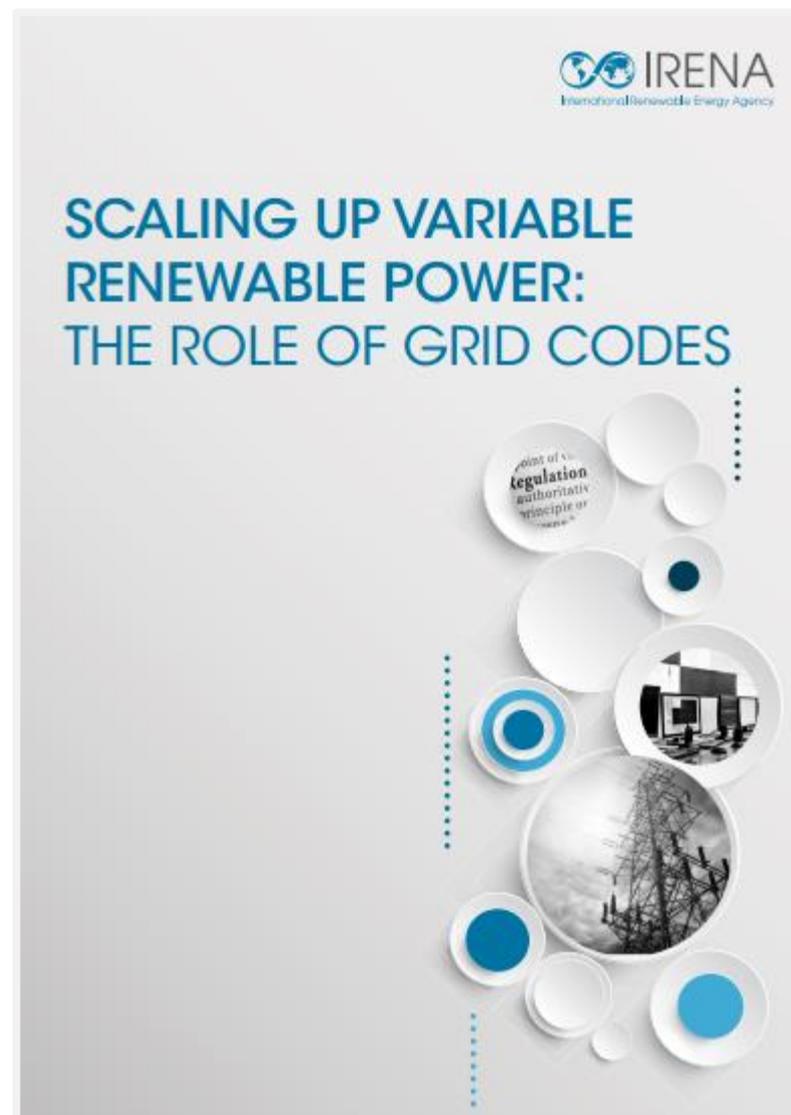
Integration into existing infrastructure

RELATIVE ECONOMICS OF INTEGRATION OPTIONS

Option costs are system-dependent and evolving over time

SYSTEM OPERATION — MARKETS — LOAD — FLEXIBLE GENERATION — NETWORKS — STORAGE

Type of Intervention

Cost

Planning coordination – VRE integration

IRENA — International Renewable Energy Agency
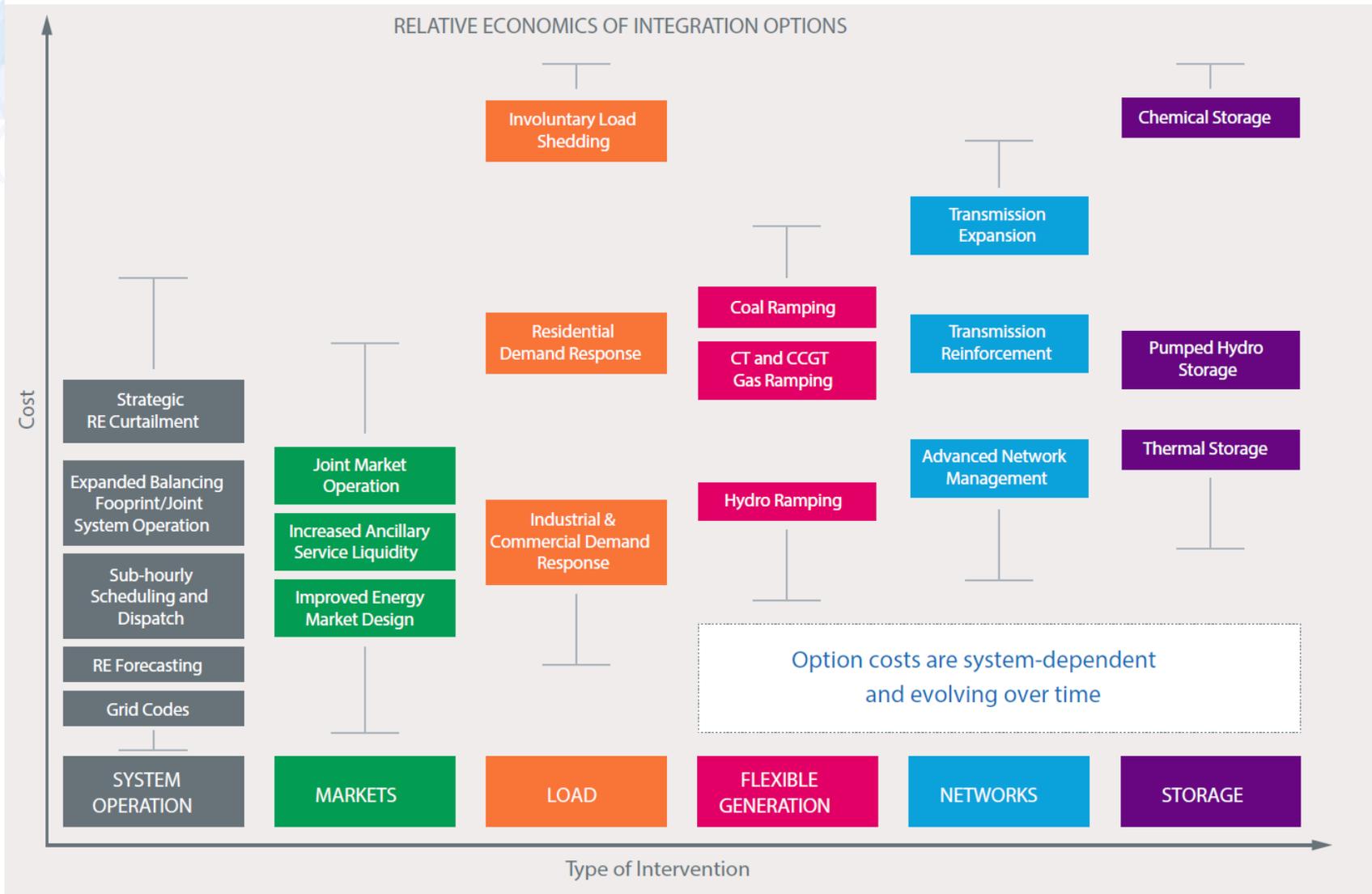
Planning challenges with VRE

Network incidences

Curtailment

Transmission grid

Designing cost-effective capacity mix
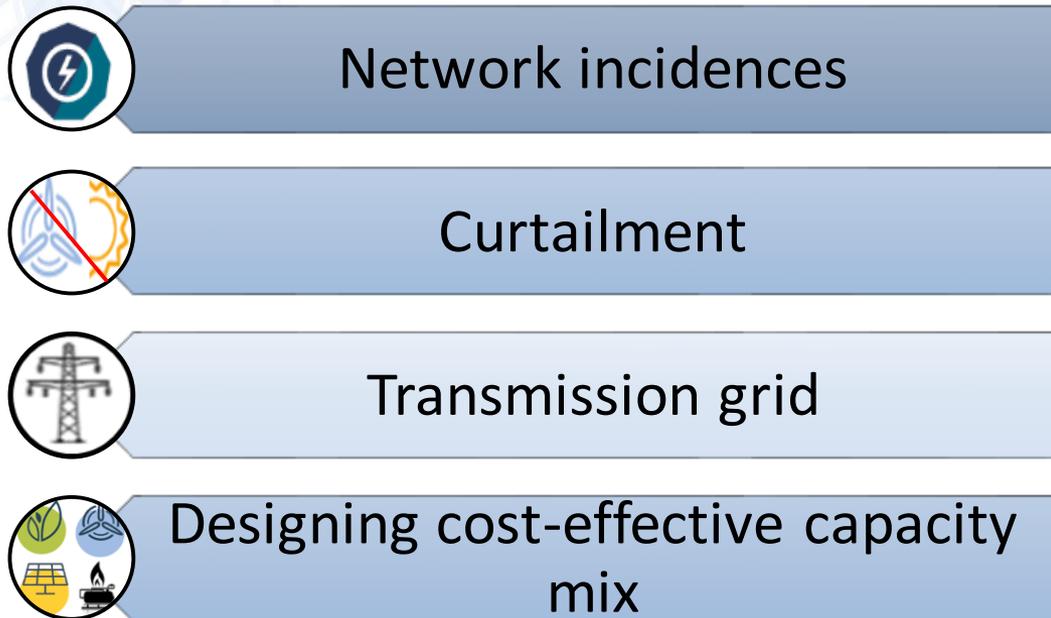
Problem driven
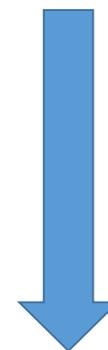
Long-term cost efficiency

Best practices

- Long-term planning
- Coordination of planning over different time horizon

PLANNING FOR THE RENEWABLE FUTURE
LONG-TERM MODELLING AND TOOLS TO EXPAND VARIABLE RENEWABLE POWER IN EMERGING ECONOMIES

Conclusion
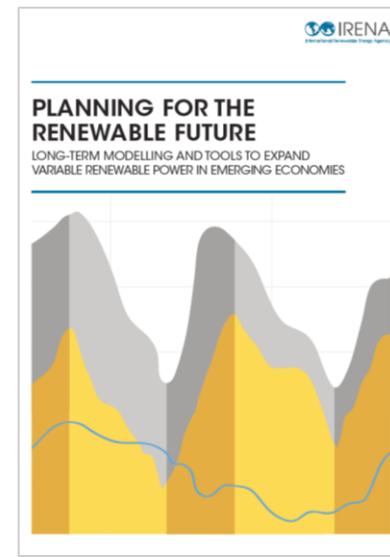
- Consistent, long-term targets are needed
  - RE and non-RE
  - Long-term and near-term
- Policy and targets need to be consensus based
  - Shared and coordinated across institutions
- Revision of policy and targets needs to be institutionalized

Source: