



EU experience in Best Practices on NEEAP Design, Monitoring and Evaluation.

Paolo Bertoldi

European Commission Joint Research Centre

Role of Energy Efficiency

- EE key area of action for Energy and Climate Policies
- EE contributes to reducing CO₂ emissions and increases the security of energy system and supply.
- EE reduces energy bills for households, public authorities and business



Main Barriers Energy Efficiency

- Lack of information of EE solutions and benefits (energy and non-energy)
- Lack of financing for investing, very high first cost, with long pay-back periods.
- Lack of technical expertise, reluctance to invest in new solutions, complex verification mechanisms



Main Barriers Energy Efficiency

Perspective	Sub-division	Barrier	Description	
Economic	Rational behaviour	Heterogeneity	Technology may not be cost effective in a particular instance.	
		Hidden costs	Technology investment entails extra costs or loss of benefits that are not reflected in engineering models.	
		Risk	Stringent investment criteria may represent a rational response to risk.	
		Access to capital	Some agents cannot obtain capital to invest.	
	Market failure	Imperfect information	Agents lack sufficient information to make economically efficient decisions.	
		Adverse selection	Agent cannot transmit or discover energy properties of a good.	
		Split incentives	Agent cannot appropriate benefit of investment - landlord-tenant type relationships.	
		Principal-agent relationships	Principal may impose strict investment criteria to compensate for imperfect information.	
	Behavioural	Bounded rationality	Bounded rationality	Cognitive limitations lead to agents satisficing rather than optimising and relying on routines and rules of thumb. Organisational routines may systematically neglect energy efficiency.
		Human Dimension	Form of information	Form of information may be inadequate to stimulate action.
Credibility and trust			Agent may not trust source of information.	
Inertia			Agents resist change because they are committed to what they are doing and justify inertia by downgrading contrary information.	
Values			Lack of environmental awareness leads to neglect of efficiency opportunities.	
Power			Agents lack sufficient power within an organisation to initiate action.	
Organisational theory	Culture	Environmental awareness and energy efficiency play no part in corporate culture.		

Source: Sorrell et al. (2000)

Main Policies to Overcome Barriers

Regulatory	Building codes; Minimum energy performance standards (MEPS) for new and existing buildings; Energy efficiency standards for appliances & equipment; Refurbishment obligations; Procurement regulations; Phase-out of inefficient equipment. Mandatory energy labelling
Financial and fiscal	Grants/subsidies; Preferential loans; Tax incentives; Energy taxation.
Information and awareness	General Information; Information campaigns; Information Centres; Energy Audits; Energy labelling schemes; Governing by Example; Information exchange; Awareness campaigns; Demonstration programmes; Energy consumption feedback; Smart meters and smart billing
Qualification, training and quality assurance	Professional training; Training courses; Vocational education, Quality standards.
Market-based	Incentives facilitating Third Party Financing / ESCOs; Energy Efficiency Obligation Schemes (EEOSs); White certificates; Incentives for the producers of innovative technologies; Technology deployment schemes.
Voluntary action	Voluntary certification and labelling programs; Voluntary and negotiated agreements.
Infrastructure investments	Investments in transportation infrastructure (e.g. railways, road networks), energy infrastructures (e.g. generation plants, electrical grid, substations, and local distribution); Smart meter roll-out.
Other	Other measures that do not fall under one of the above categories.

EU Energy Efficiency Policy (Multilevel Governance)

- EU-level energy efficiency policies:
 - Eco-design and Energy Labelling
 - Energy Efficiency of Buildings Directive
 - Energy Efficiency Directive
 - Regulation of Vehicle Emissions
 - ETS and Industrial Emissions
- National Energy Efficiency policies
 - Implementation of EU policies
 - Nationally determined policies (financing, information, national regulations, etc.)

NEEAP Principles

NEEAP Principles - 1

- The NEEAP should incorporate a comprehensive set of measures addressing energy efficiency in all major energy-consuming economic sectors. For each measure an adequate description should be given.
- A target and a timeline for each measure should be given.
- An indication of the extent to which the measure has been implemented and of its effectiveness should be presented (e.g. the number of participants, number of actions undertaken, the size of state- and private sector investment in the programme, the annual energy consumption of consumers affected by the measure, etc.)

NEEAP Principles - 2

- The NEEAP should provide an overview of national energy trends and explain the key factors affecting consumption patterns and energy efficiency trends in the country.
- The NEEAP should highlight all significant developments that have occurred, e.g. changes in the economic situation, energy supply, productivity, population, transport modes, [and should describe key energy policy changes in the three-year period since the last NEEAP.]

NEEAP Principles - 3

- The NEEAP shall contain a coherent energy efficiency strategy with a good mix of, including financial, fiscal, regulatory, voluntary and information measures.
- A coherent approach can be shown by demonstrating how measures complement each other, for instance a regulatory measure may be implemented in combination with an information campaign, or a building renovation programme may be complemented by the availability of low-interest loans.

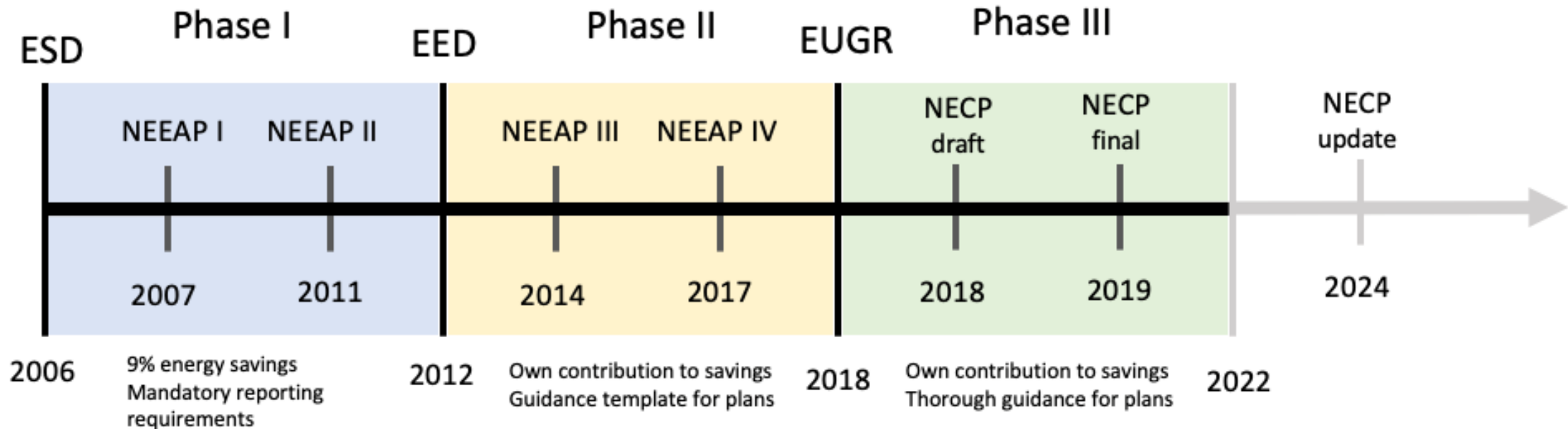
NEEAP Principles - 4

- The plan should identify major barriers to energy efficiency in the Member State and measures should be designed to overcome identified barriers.
- Achieved and forecast savings per measure or per group of measures should be presented. An indication should also be given of the level of effort involved in the implementation of the measure, such as the level of financing and the number of consumers affected, so that the success of the measure, or the level of savings versus level of effort, can be better assessed.

NEEAP Principles - 5

- The methodology for calculating energy savings should be explained.
- The NEEAP should present all calculations, including formulae, conversion factors and assumed values. It should explain the calculation methodologies, i.e. measured, modelled or deemed savings, bottom-up or top-down. It should describe how adjustments for potential double-counting and for “free rider” effects have been made..

Progress towards 2030 targets at EU27 level



ESD - Energy Services Directive
EED - Energy Efficiency Directive
EUGR - Regulation on the Governance of the Energy Union and Climate Action
NEEAP - National Energy Efficiency Action Plan
NECP - National Energy and Climate Plan

National Energy Efficiency Action Plans

- In the European context, the requirement of drafting national strategies on energy efficiency dates back to the adoption of the **Energy Services Directive**, in 2006.
- MSs were required to reach an end-use energy saving target of 9% by 2016 underpinned by a NEEAP, which “provides an overview of its strategy for the achievement of the intermediate and overall targets”.
- The NEEAPs, included information on the national targets as well as details on policies, regulatory, institutional, financial and legal frameworks set in each MSs to eliminate barriers energy efficiency. The ESD focused on tracking energy efficiency impacts, i.e. detailed monitoring of (policy-induced) energy savings.

National Energy Efficiency Action Plans - ESD

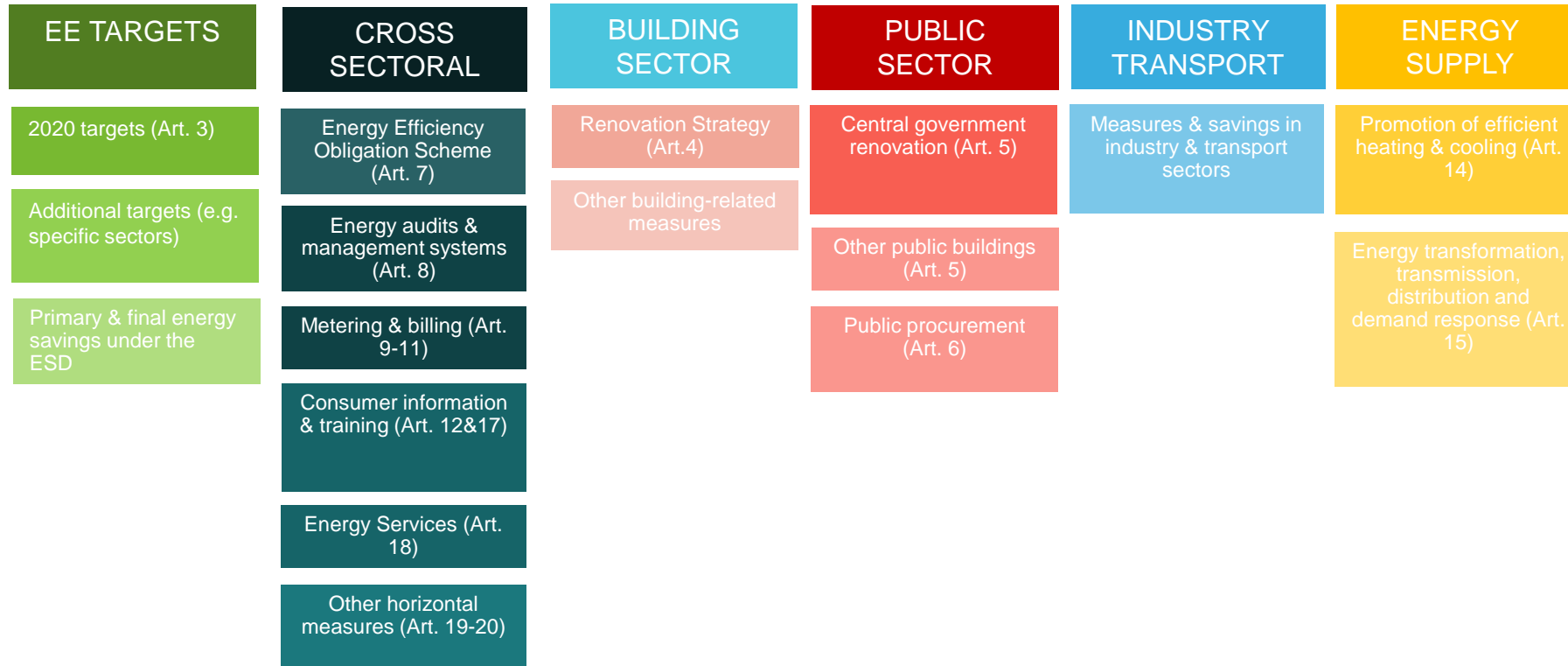
- The NEEAPs, which were due every 3 years, included information on the indicative national targets as well as details on the incentives and the regulatory, institutional, financial and legal frameworks set in each MSs to eliminate barriers preventing efficient end use of energy.
- The ESD focused on tracking energy efficiency impacts, i.e. detailed monitoring of (policy-induced) energy savings. As the target was based on measured energy savings which had to be established on policy-by-policy basis and could not directly be derived from existing energy statistics,

The Energy Efficiency Directive

Structure and Coverage of the EED

1. TARGETS

2. POLICY MEASURES

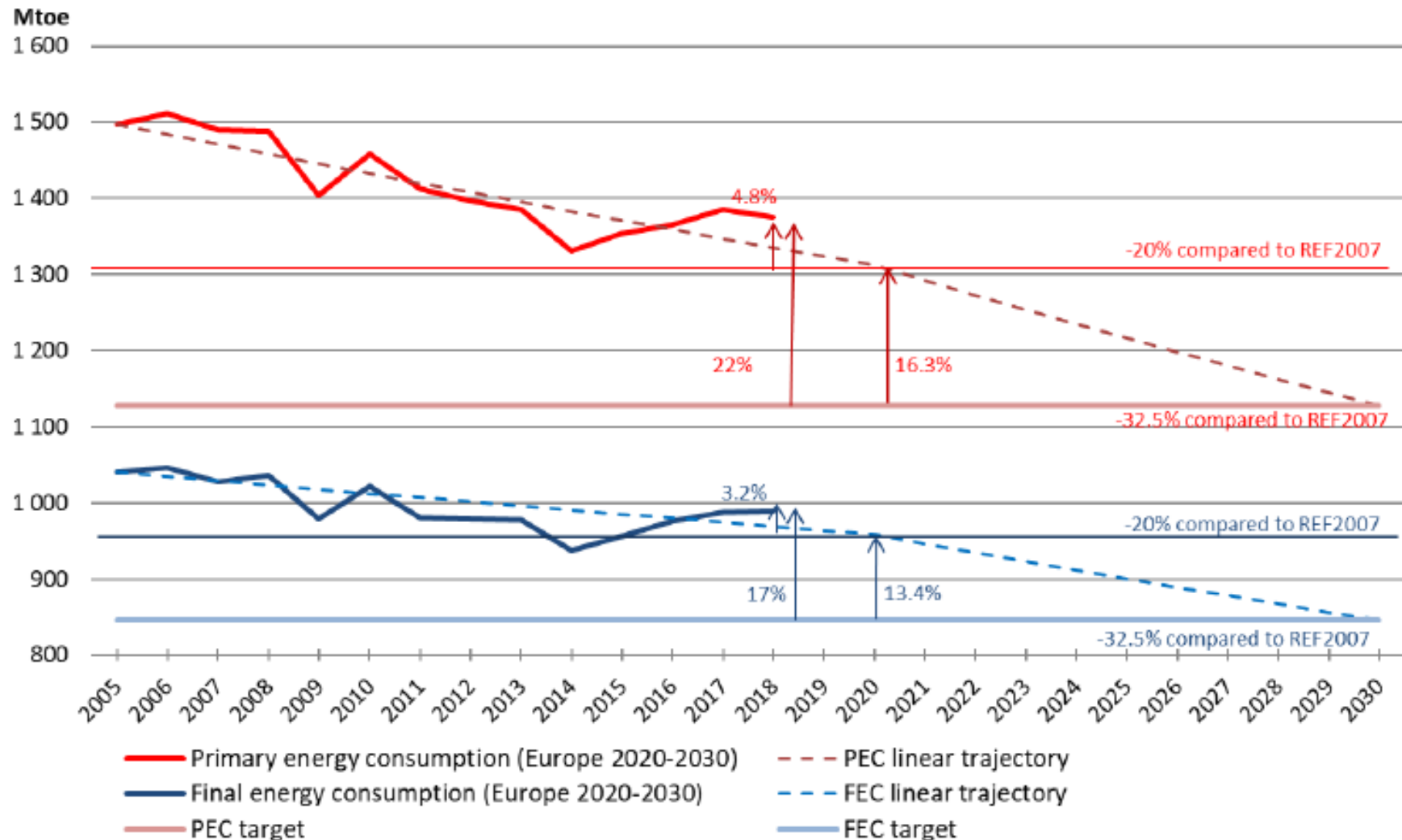


Art. refers to specific Articles of the EED 2012

The Recast EED -1

- The **Commission proposal** for a recasts the EED directive introduced a higher target for reducing **primary (39%)** and **final (36%)** energy consumption by 2030 now binding at EU level up from the current target of 32.5% (for both primary and final consumption).
- It introduces a **benchmarking system** for Member States to set their national indicative contributions to the binding EU target.
- The new directive also proposes to nearly double Member State annual **Energy Savings Obligations** in end use (ex Art.7) now set at **1.5 %** of energy sales.
- The proposal focuses on sectors with high energy-savings potential: heating and cooling, industry (including data centres).

Progress towards 2030 targets at EU27 level



NEEAPs in the EU

- In the EU NEEAPs was originally envisaged under the ESD as a tool to track both strategic planning and achieved progress.
- Under the EED, strategic planning and achieved progress were separated, with several implementation progress aspects being streamlined through the so-called annual reports (Zangheri et al., 2019).
- The distinction between strategic planning and progress reporting was made stronger with the EUGR through the introduction of annual and biennial progress reports which focus exclusively on implementation and progress monitoring aspects, mirroring the NECP template elements.
- Another key element is the establishment of templates to guide reporting; these were formally introduced in the EED and elaborated further under the EUGR.

NEEAP Assessment criteria

Compliance with Reporting Obligations

- Reporting obligations, which may cover specific requirements such as structure of plans, content and reporting frequency, deadline, must be respected.
- A template could facilitate this

Target definition, Coherency and Monitoring

- The second area relates to target definition, coherency and monitoring.
- A comprehensive energy efficiency strategy must be underpinned by a well-defined, easy-to-monitor and ambitious target that takes into account the remaining cost-effective energy-saving potential in the country and ability to pay for future investments.
- It is important to have modelling methodologies together with underlying assumptions and baseline scenarios.
- Exploring interactions with and contributions to other climate-related targets is also important

Policies and Measures - 1

- Key for reaching the targets is the implementation of policies and measures in view of exploiting the identified energy saving potential.
- A coherent package of policies and measures, consisting of a balanced mix of financial, fiscal, regulatory, voluntary, information-awareness, supportive and other measures in all major energy-consuming sectors, is a prerequisite for a complete strategy.
- Each measure must be described thoroughly with complete information on policy objectives, responsible implementation authorities, targeted sectors, beneficiaries, implementation status, timeline, budgetary needs and sources, expected impacts and calculation methodologies

Policies and Measures - 2

- In the a minimum level of information on policies and measures has not been mandated by the respective EU legislation, the EUGR encouraged the provision of this information through a voluntary template. (
- A coherent reporting approach, however, demonstrates how policy measures may complement each other and how adjustments for additionality, potential double-counting, multiplier and “free rider” effects must be made.

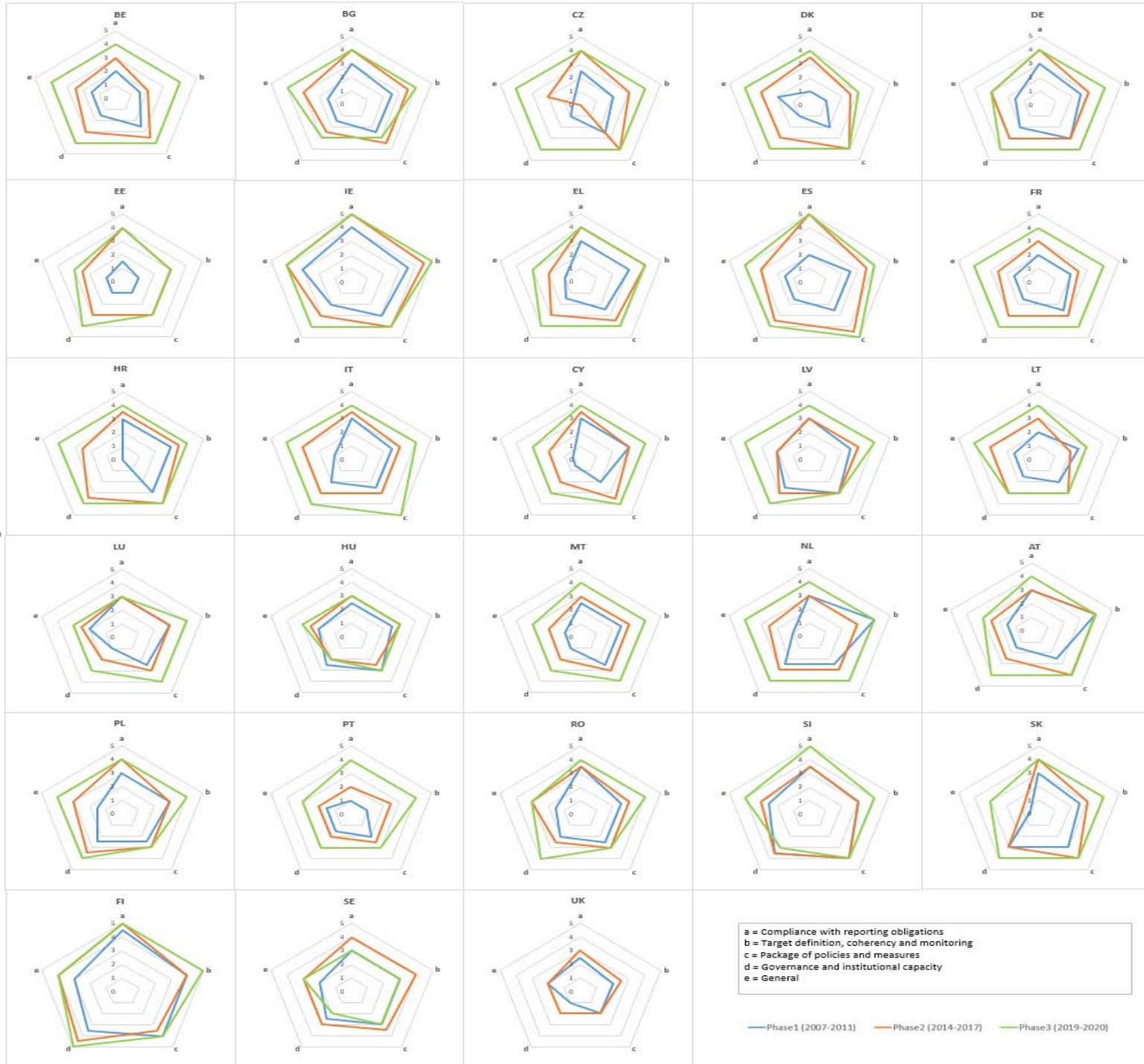
Governance and Institutional Capacity

- NEEAPs shall contain a credible framework on how to establish appropriate governance and institutional capacity.
- This can ensure effective design, implementation and evaluation of policies and it often may require strengthening existing institutional capacity or developing new administrative infrastructure and funding structures.
- More attention towards coherent governance of energy efficiency institutions and the way these institutions are designed is important for a successful implementation of the plan.
- Strategies should also provide information on investment needs and respective private and public budgetary sources and commitments towards implementation.

General Issues

- A coherent NEEAP should identify key priorities in connection to current political, economic, and social challenges with a view of expanding the impact of energy efficiency beyond energy and cost savings.
- With important contributions in economic growth, social development, energy security, industrial productivity, poverty alleviation and job creation, the role of energy efficiency should be reflected under a broader framework
- For example, alleviation of energy poverty is highlighted a key EU policy priority in the Clean Energy for all Europeans Package and included as reporting obligation in the EUGR and energy renovation of buildings is regarded as a measure to reverse the economic impact of the Covid-19 pandemic.

Results of the Assessment for EU 27 MSs



a = Compliance with reporting obligations
 b = Target definition, coherency and monitoring
 c = Package of policies and measures
 d = Governance and institutional capacity
 e = General

Phase1 (2007-2011) Phase2 (2014-2017) Phase3 (2019-2020)

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Phase1 (2007-2011) Phase2 (2014-2017) Phase3 (2019-2020)

Concluding remarks

Conclusions

- NEEAP is a powerful instrument to implement well designed policies and measure to improve energy efficiency and helps in reaching EE targets
- NEEAP allow integrated policy packages with many coherent measures covering all sectors.
- NEEAP is mainly a planning instrument complemented by monitoring instruments
- There are 5 evaluation criteria for NEEAP: 1. compliance with reporting obligations, 2. target definition, coherency and monitoring, 3. policies and measures, 4. governance and institutional capacity, and 5. general issues.

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Thank you

paolo.bertoldi@ec.europa.eu



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