

## CHAPTER 4

### KEY ISSUES FOR SEA OF NATIONAL/REGIONAL ENERGY POLICIES, PLANS AND PROGRAMMES

#### 4.1 Application of SEA to energy policies, plans and programmes

All countries face the challenges of climate change, and most have already taken steps to promote the transition away from fossil fuel consumption to enable and promote investment in renewable energy. It is reported that solar and wind are now being installed at a rate that is three times faster than all other new electricity sources combined<sup>1</sup>.

Many countries have already, or are in the process of, reviewing, revising or developing new national energy policies, strategies and plans to reflect the need for developing renewable energy and set out how they will achieve such change. But, for most countries, the transition will be gradual (over many decades). As new renewable energy options are explored, committed to, and developed, there will still be a continuing need to rely on coal, oil, and other fossil fuels for some time to come. So, most countries will continue to rely on a mix of energy sources (both fossil fuel-based and renewables-based) and their energy policies, plans and strategies will be likely to continue to reflect this.

Countries have developed a wide range of policies, plans and programmes (PPPs) for the energy sector (Table 4.1).

**Table 4.1: Examples of types of energy policies, plans and strategies**

	Type	Examples
<b>Policies</b>	Energy policies	Nigeria 2022, Myanmar 2014
<b>Plans</b>	Energy productivity plans	Australia 2015
	Energy transition plans	Ghana 2022, Nigeria 2022
	Energy development plans	Estonia 2014
	Renewable Energy Action Plans and National Energy and Climate Plans	EU member states
	Energy sector plans	Samoa 2017
	Electricity plans	India 2022
	Power sector master plans	Cape Verde 2017
	Power contingency plans	Philippines 2021
<b>Strategies</b>	Energy strategies	Jordan 2020, EU 2022

Energy policy-making planning has traditionally focused on estimating demand and determining the types of energy sources to be used to meet it. More recently, other goals such as minimising the cost of energy while addressing environmental concerns, particularly reducing greenhouse gas emissions, have been incorporated. Such policies and plans aim to guide the future of local, national, regional systems, reflecting the needs resulting from population growth and consumption patterns.

Despite these new challenges, energy planning and policy-making remains a largely technical and economic exercise. Wider environmental and social (including cultural) factors are highly relevant to developing models for meeting future energy demands but have largely been neglected. Energy planning is often conducted within governmental organisations but may also be carried out by large energy companies such as electric utilities or oil and gas producers. It may involve input from different stakeholders drawn from government agencies, local utilities, academia, and other interest groups. Energy planning is frequently undertaken using integrated approaches that consider both the provision of energy supplies and the role of energy efficiency in reducing demands.

<sup>1</sup> Blakers and Ruther (2023)

Energy plans have traditionally played a strong role in setting the framework for regulations in the energy sector (e.g., concerning the type of power plants that can be built or prices that can be charged for fuels). But over the past three decades, in many countries, energy systems have been deregulated resulting in reduced energy planning and decisions have increasingly been left to the market. In the last few years, this trend has reversed following increasing concerns over the environmental impacts of energy consumption and production, particularly considering the threat of global climate change. Sustainable energy planning is particularly appropriate for communities who want to develop their own energy security, while employing best available practice in their planning processes.

As for any other SEA, its application to energy PPPs should seek to merge with and support the process of development of the PPP to achieve maximum influence on its design and content. The experience of Vietnam in applying SEA to support preparation of successive Power Development Plans (PDPs) illustrates an evolution in SEA integration (Box 4.1)

#### **Box 4.1: Evolution in SEA integration in Vietnam's Power Development Plans**

The case of Viet Nam's Power Development Plans (PDPs) illustrates how incorporating SEA into the planning process for successive PDPs ensured that they were based on a more thorough understanding of their implications for the economy, society, and environment of the country.

The first integration of SEA into the PDP was done in the preparation of the Hydropower Master Plan in the context of PDP VI. This pilot SEA considered the potential impacts of 21 large-scale hydropower schemes included in PDP VI. Five scenarios were considered: one with a base case consisting of the existing schemes included in PDP VI, and four that progressively reduced the number of hydropower schemes and replaced them with least-cost alternatives (generally thermal power) identified through the PDP process. The impacts of alternative generating sources were considered in each scenario, providing a meaningful analysis of the different options to meet the needs for generation capacity defined in PDP VI.

The lessons learned from the pilot SEA showed that changes were needed in the PDP planning process to ensure that social and environmental impacts were fully integrated into the plans for the sector. The SEA proposed a detailed model of how this was to be achieved and to inform the development of the SEA in PDP VII, which was based on the experiences and capacities developed in the execution of the pilot hydropower SEA linked to PDP VI.

The original PDP VII was prepared in 2011–2012 to guide the development of the power sector for the period 2011–2030. It analysed future electricity demand scenarios by sector, considering potential economic and social development trends. It also assessed the most effective, least-cost power generation options for meeting likely future demand patterns. The plan's SEA was done simultaneously with the preparation of the PDP. While there was close coordination at the different stages of analysis during the PDP and the SEA preparation, there were also limitations in the extent to which the SEA was fully integrated into the PDP process.

Awareness of these impacts and concerns that the demand projections were too high led to a revision of PDP VII. The preparation of the revised PDP was based on the SEA from the original plan, with the scenarios in the analysis defined in relation to impacts identified in the SEA and related to the achievement of policies on renewable energy and energy efficiency.

The latest version of Viet Nam's PDP—the revised PDP VII (RPDP VII)—is a model of good practice in integrating an SEA in the preparation of a strategic plan that is important not just for Viet Nam but for the power sector of other countries, particularly in the Greater Mekong Subregion. The SEA provided an understanding of the implications of the different development options in the PDP, leading to significant changes in the final contents of the plan, ensuring better alignment to national development policies of Viet Nam and that it more effectively reflected specific national targets in areas such as renewable energy and greenhouse gas (GHG) mitigation.

*Source: ADB (2018)*

Regional cooperation will be of increasing importance in developing such PPPs as there will be collective opportunities for diversifying electricity generation mixes and reducing reliance on fossil fuel resources.

#### 4.2 Guidance and training for developing energy PPPs

It is often difficult to know whether individual governments have issued internal guidance for developing energy PPPs as this information may not be made public.

The EU has issued guidance for preparing progress reports on the implementation of National Energy and Climate Plans (NECPs) (EU 2022). It sets out setting our principles and good practice and describes how the reports should address a range of issues. But there is not specific requirement to subject the NECPs to an SEA process (EU 2022)<sup>2</sup>. (NECPs are discussed in section 4.3).

In the USA, guidance is available for community energy strategic planning (USDE 2013) (Box 4.2) whilst, in the UK, Energy Systems Catapult has published *guidance on how to create a Local Area Energy Plan* (LAEP) (Box 4.3). Both suggest a series of steps for the process.

#### Box 4.2: Guide to Community Energy Strategic Planning (CESP), USA

In 2013, the US Department of Energy prepared a Guide to Community Energy Strategic Planning (CESP) (USDE 2013). It offers the following 10-step process for creating a robust strategic energy plan for a local government and community that can help save money, create local jobs, and improve national security:

- 1: Establish and charge a leadership team;
- 2: Identify and engage stakeholders;
- 3: Develop an energy vision;
- 4: Assess the current energy profile;
- 5: Develop energy goals and strategies;
- 6: Identify and prioritize actions;
- 7: Put together a financing strategy;
- 8: Develop a blueprint for implementation;
- 9: Plan to evaluate;
- 10: Develop, adopt, and publicize the CESP.

The guide offers tools and tips to complete each step and highlights examples from successful planning efforts around the country. It aims to help local governments and community stakeholders to use the CESP framework to build on initial energy successes by moving from single projects and programs to a comprehensive, long-term energy strategy that delivers benefits for years to come. A CESP is seen not as a static document but rather as a long-term blueprint to focus and guide efforts and actions toward a defined energy vision. The plan articulates goals, develops strategies and actions to meet the goals, and identifies and allocates resources to assure effective completion of these strategies.

Source: USDE 2013.

<sup>2</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A52022XC1229%2802%29%from=EN>

#### **Box 4.3: Guidance on how to create a Local Area Energy Plan (LAEP), UK**

In the UK, Energy Systems Catapult has published *guidance on how to create a Local Area Energy Plan* (LAEP), aimed at local government organisations who are looking to create a plan to help them meet their net zero goals and climate emergency declarations<sup>3</sup>. A LAEP sets out the change required to transition an area's energy system to Net Zero in a given timeframe. This is achieved by exploring potential pathways that consider a range of technologies and scenarios, and when combined with stakeholder engagement leads to the identification of the most cost-effective preferred pathway and a sequenced plan of proposed actions to achieving an area's Net Zero goal.

The Guidance provides a detailed description of a 7-stage end-to-end process:

1. Preparation
2. Stakeholder Identification and Engagement
3. Understanding and Representing the Current Local Energy System
4. Modelling Options for the Future
5. Scenario Refinement and Selection
6. Actions, Priorities, and Decisions
7. Create the Plan

Source: <https://es.catapult.org.uk/guide/guidance-on-creating-a-local-area-energy-plan/>

#### **Training**

The International Renewable Energy Agency (IRENA) provides capacity building support to countries for developing or updating national energy masterplans through its Masterplan Development Support Programme<sup>4</sup>. The programme typically spans one to two years and includes several weeks of in-country training to calibrate a system planning test model, explore energy planning scenarios, and develop a national energy masterplan document. In-country sessions are complemented by online training and other meetings.

#### **4.3 Status of SEA practice in the energy sector**

Despite repeated calls to advance more strategic forms of impact assessment in energy planning, decisions about renewable energy development are still predominantly approached on a project-by-project basis<sup>5</sup>. Nevertheless, energy plans, programs, and sometimes policies are subject to strategic environmental assessment (SEA) in many parts of the world. In Europe, for example, energy plans are explicitly listed in the SEA Directive (2001/42/EC) while in low and middle-income countries energy is, next to transport, the most important sector in which SEAs are required to be undertaken.

A study by Geissler *et al.* (2021) provides an overview of the current state of research on and practice of SEA in the energy sector. A key message is that SEAs for energy plans, programs and policies have similar shortcomings to SEAs in other sectors. In particular, the assessment of cumulative effects and the consideration of alternatives are currently done poorly. The authors observe that, almost without exception, plan alternatives instead of strategic alternatives are developed and assessed in practice. Based on detailed case reviews, they identify meaningful energy alternatives from policy to programme levels (Table 4.2)

<sup>3</sup> See: <https://es.catapult.org.uk/guide/guidance-on-creating-a-local-area-energy-plan/>

<sup>4</sup> see: [www.irena.org](http://www.irena.org)

<sup>5</sup> Nwanakezi *et al.* (2022)

**Table 4.2: PPP levels and energy alternatives**

Source Gessler *et al.* (2021)

Level	Characteristic	Alternatives	Energy alternatives	Methodology
<b>Policy</b>	Federal course and guidance	<ul style="list-style-type: none"> <li>• System alternatives;</li> <li>• Strategic options</li> </ul>	<ul style="list-style-type: none"> <li>• Alternative energy concepts;</li> <li>• Variations in energy mix;</li> <li>• Renewable sources;</li> <li>• Distribution options.</li> </ul>	Broad-brush, qualitative (e.g. scenario analysis)
<b>Plan</b>	Strategy for a spatial or sectoral planning section	<ul style="list-style-type: none"> <li>• Development strategies within the sector, plan variations</li> </ul>	<ul style="list-style-type: none"> <li>• Energy supply strategies;</li> <li>• Broad spatial alternatives;</li> <li>• Degree of exploitation;</li> <li>• Infrastructure options.</li> </ul>	Quantitative and qualitative methods (e.g. impact matrices)
<b>Programme</b>	Schedule of activities in a specific area	<ul style="list-style-type: none"> <li>• Alternatives to proposed actions (site, scope, mode)</li> </ul>	<ul style="list-style-type: none"> <li>• Site alternatives (bundle of projects);</li> <li>• Degree of exploitation;</li> <li>• Restriction options.</li> </ul>	Quantitative (e.g. MCA, CBA)

The study involved an internet search for SEAs undertaken for the energy sector. It identified 83 SEAs from 28 countries with environmental reports (ERs) published between 2001 and 2019 for which access to the ER or at least to the non-technical summary was given<sup>6</sup>.

But only a limited number of countries (20) have been identified as having applied an SEA process to the development of their national energy PPPs (see Table 4.3). Early examples are the SEAs for energy policies in the Czech and Slovak Republics (Box 4.4). Another is the from the UK where the Department for Business, Energy & Industrial Strategy (BEIS) (formerly DTI, BERR and DECC) has undertaken a sequence of Offshore Energy SEAs (OSEA) focused on oil and gas since 2001 (Box 4.5).

A recent case study used renewable energy transitions in Saskatchewan, Canada, to demonstrate how a transitions-based SEA framework can be applied to explore the capacity needs, opportunities, risks, and obstacles in existing institutions and governance arrangements for low-carbon transitions (Box 4.6).

<sup>6</sup> It is possible that earlier SEAs were not found as they might no longer be available online or never have been made available online in the first place.

#### **Box 4.4: SEA of energy policy in Czech and Slovak Republics**

**SEA of Czech Energy Policy (1997):** This identified objectives and measures for the development of the entire sector (electricity, coal and gas) including future privatisation and use of economic instruments. It also addressed the future use of nuclear power, including specific project issues:

- whether to stop or proceed with a second nuclear power plant already approved and partly built; and
- whether to change the limits for open-cast coal mining, which would result in the destruction of additional villages in North Bohemian and North Moravia.

The SEA process focused mainly on the elaboration of the report. Extensive scoping included a national public hearing to comment on the draft policy and the proposed assessment methodology. The scoping process initiated the development of three distinct scenarios of energy mixes. These could be achieved by the use of available administrative, and legal and economic instruments to regulate behaviour of companies and individuals. The scenarios were extensively modelled and assessed against set of 16 categories of environmental, social and economic impacts. A public review of the draft SEA report was held in the main chamber of the Czech Senate.

**SEA of the Slovak Updated Energy Policy (EP 1997):** This comprised a number of steps:

- provision of information to the public about preparation of the EP;
- expert review, including presentation of opinions for public discussion;
- public forum on the EP with participation from state and professional bodies, industry, universities and research institutions, non-governmental organisations and the media;
- statement by the Ministry of Environment (MoE) on the basis of expert opinion, other comments and public discussion;
- conclusion of the public discussion, with the Statement of MoE and the Statement of the Ministry of Economics sent to all participants; and
- submission of a new version of the proposed EP to the Slovak government – subsequently approved.

The SEA process had a number of positive features, notably with regard to public consultation and input. But NGO representatives strongly criticised the shortcomings of EP-1997 and weaknesses in the policy development process itself which lacked adequate environmental, health and socioeconomic assessments.

Source: Dusik (2003 a, b)

#### **Box 4.5: Offshore energy SEAs in the UK**

Since 2001, the UK has undertaken a series of Offshore Energy SEAs (OSEA) considering various areas of the UK continental shelf (SEA areas 1-8), in addition to an SEA for Round 2 wind leasing. The more recent Offshore Energy SEAs (OSEA, OSEA2, OSEA3 AND OSEA4) incorporated the entire UK continental shelf (with the exception of Northern Ireland and Scottish territorial waters for renewable energy, and Scottish territorial waters for carbon dioxide transport and storage), for technologies including oil and gas exploration and production, gas storage and offloading including carbon dioxide transport and storage, renewable energy (including wind, wave and tidal power), and offshore hydrogen production and transport.

As these SEAs have been carried out, the process has evolved and continues to improve. It includes consultation with the public, environmental authorities, and other bodies, together with such neighbouring states as may be potentially affected. The process is guided by a Steering Group comprising departmental representatives, conservation and other agencies, NGOs, industry representatives and independent experts. The diverse members' role is to act as technical peers, guiding the selection of SEA methods and identifying the right information sources.

Source: <https://www.gov.uk/government/collections/offshore-energy-strategic-environmental-assessments>

#### **Box 4.6: SEA for energy transitions**

A study showed how applying SEA to renewable energy transitions in Saskatchewan, Canada, identified significant benefits, opportunities, and risks in renewable energy transitions. Opportunities existed to address energy security concerns and promote distributed generation, but perceived risks included the immediate economic impacts of transitioning away from a fossil-based economy, reliability risks owing to the intermittent nature of renewables, and political uncertainty about the future electricity landscape. The results showed the need for clear transition goals and implementation strategies, including full commitment to the transition agenda. For transitions-based SEA, results highlighted the need for transparency and accountability to ensure effective implementation and the difficulty in establishing new assessment regimes. The lessons of this study appear broadly relevant for addressing low-carbon transition challenges and opportunities in other jurisdictions.

Source: *Nwanakezie et al. (2022)*

**Table 4.3 Examples of SEA applied to the energy sector policies, plans and strategies**

Source: A.Kolhoff, Netherlands NCEA

Cases (with hyperlink to documents if available)	Country	Scale / Basin	Year / status	Subject of SEA	Level of influence
1 SEA or Energy Policy.	Slovak Republic (Box 4.1)	National	1997 and 2000	Energy policy	Moderate
2 SEA for Energy Policy.	Czech Republic (Box 4.1)	National	2002	Energy policy	No
3 <a href="#">Strategic/Sectoral, Social and Environmental Assessment of Power Development Options in The Nile Equatorial Lakes Region</a>	Nile Equatorial Lakes Region	International	2007	Energy policy	Low
4 SEA for National Energy Policy. SEA case description available.	Ghana	National	2008	National energy Policy	Low
5 SEA for Power Development Plan VII. SEA report available: <a href="https://gms-eoc.org/resources/two-seas-on-power-development-planning-in-viet-nam">https://gms-eoc.org/resources/two-seas-on-power-development-planning-in-viet-nam</a>	Viet Nam	National	2011	Power development plan VII (ex-ante)	High
6 SEA for Saskatchewan electricity planning.	Canada	State / province	2012	Electricity supply plan	Unknown
7 SEA for National Energy Development Strategy by 2030. Summary and review of SEA available: <a href="http://www.greenhome.co.me/fajlovi/greenhome/attach_fajlovi/eng/main-pages/2013/07/pdf/Review_Of_The_SEA_For_The_Draft_Energy_Development_Strategy_In_Montenegro_By_2030.pdf">http://www.greenhome.co.me/fajlovi/greenhome/attach_fajlovi/eng/main-pages/2013/07/pdf/Review_Of_The_SEA_For_The_Draft_Energy_Development_Strategy_In_Montenegro_By_2030.pdf</a>	Montenegro	National	2013	Energy strategy	Unknown
8 SEA for Revised Power Development Plan VII. SEA report not available.	Viet Nam	National	2014	Revised power development plan VII	High
9 SEA for Energy Sector Development Strategy. SEA report available: <a href="https://mingor.gov.hr/UserDocsImages/UPRAVA-ZA-PROCJENU-UTJECAJA-NA-OKOLIS-ODRZIVO-GOSPODARENJE-OTPADOM/Spuo/29_08_2017_SPU_POS_Strategija_RS.pdf">https://mingor.gov.hr/UserDocsImages/UPRAVA-ZA-PROCJENU-UTJECAJA-NA-OKOLIS-ODRZIVO-GOSPODARENJE-OTPADOM/Spuo/29_08_2017_SPU_POS_Strategija_RS.pdf</a>	Serbia	National	2015	Energy strategy	Low
10 SEA for GMS power planning	Greater Mekong subregion 6 countries	International	2015	Power development plan	Unknown
11 <a href="#">SEA for National Energy Sector Policy</a>	Rwanda	National	2015	Energy sector policy	Unknown
12 SEA for National Power Policy*.	Taiwan	National	2015	National power plan	Moderate
13 SEA for National Strategy of Renewable Energy. Summary of SEA report available:	Azerbaijan	National	2016	Nat. renewable energy strategy incl. hydropower	Unknown



Cases (with hyperlink to documents if available)	Country	Scale / Basin	Year / status	Subject of SEA	Level of influence
<a href="https://unece.org/fileadmin/DAM/env/greeneconomy/Lea/EaP/SEA_Azerbaijan.pdf">https://unece.org/fileadmin/DAM/env/greeneconomy/Lea/EaP/SEA_Azerbaijan.pdf</a>					
14 SEA for Power Development Master Plan.	Angola	National	2018	Power development master plan	Unknown
15 SEA for Master Plan Study on National Power system development. SEA report available as part of master plan. <a href="https://africa-energy-portal.org/sites/default/files/2019-07/Master%20Plan%20Study%20for%20Power%20Sector%20System%20Development%20in%20Nigeria.pdf">https://africa-energy-portal.org/sites/default/files/2019-07/Master%20Plan%20Study%20for%20Power%20Sector%20System%20Development%20in%20Nigeria.pdf</a>	Nigeria	National	2019	Power development master plan	Unknown
16 SEA for National Power Power System Master Plan 2040. SEA report available as part of master plan. <a href="https://openiicareport.iica.qo.ip/pdf/12326856_01.pdf">https://openiicareport.iica.qo.ip/pdf/12326856_01.pdf</a>	Bhutan	National	2019	Power development master plan	Unknown
17 SEA of National Energy and Climate Plan	Slovenia	National	2019	Energy & climate plan	
18 SEA for National Power Plan.	Cambodia	National	On-going	Power development plan	...
19 SEA for Power Development Plan VIII.	Viet Nam	National	Ongoing	Power Development Plan VIII	...
20 Offshore Energy SEA – a series of SEAs since 2001	United Kingdom	National	Ongoing	Oil & gas	

## 4.4 EU requirements for energy plans

### 4.4.1 EU member states

The European Commission require EU member states to submit a National Renewable Energy Action Plan (NREAP) outlining commitments and initiatives to develop renewable energy by 30 June 2010. NREAPs provided a detailed road map of how each member state expected to reach its legally binding 2020 target for the share of renewable energy in its total energy consumption, as required by article 4 of the Renewable Energy Directive (2009/28/EC). The plans set out sectoral targets, the technology mix expected to be used, the trajectory to be followed, and the measures and reforms to be undertaken to overcome the barriers to developing renewable energy.

Each NREAP report provided details of the expected share of energy provided by renewable sources up to and including 2020. The overall target for EU countries is to obtain 20% of their energy usage from renewable energy sources although targets for each country vary considerably. In addition, targets are broken down further by each energy use sector including transport, electricity, and the heating and cooling sectors.

In the European Union, a Regulation on the Governance of the Energy Union and Climate Action (EU)2018/1999 entered into force on 24 December 2018 as part of the Clean Energy for all Europeans package. Under rules in this regulation, all member states were required to prepare a draft (by 2020) of a 10-year integrated national energy and climate plans (NECP) (Box 4.7) for the period from 2021 to 2030 charting how they aim to meet the EU's energy and climate targets for 2030. The NECPs outline how EU countries intend to address: energy efficiency; renewables; greenhouse gas emissions reductions; interconnections; and research and innovation. Each Member State is required to ensure that the public is given early and effective opportunities to participate in the preparation of the draft integrated national energy and climate plan.

#### Box 4.7: Integrated national energy and climate plans

The integrated national energy and climate plans (NECP) provide an overview of the current energy system and policy situation. They set out national objectives for each of the five dimensions of the Energy Union and corresponding policies and measures to meet those objectives. A socially acceptable and just transition to a sustainable low-carbon economy requires changes in investment behaviour, as regards both public and private investment, and incentives across the entire policy spectrum. The plans should be stable to ensure the transparency and predictability of national policies and measures to ensure investment certainty.

The draft plans offer a common, solid, and comparable platform to actively engage and discuss in a synchronized way across Europe with civil society, business and local governments on the EU's common challenges and long-term priorities in the field of energy and climate.

Source: [https://energy-ec-europa-eu/system/files/2019-06/national\\_energy-and\\_climate-plans\\_v4\\_0.pdf](https://energy-ec-europa-eu/system/files/2019-06/national_energy-and_climate-plans_v4_0.pdf)

According to Chapter 2, Article 3 of the Regulation, integrated national energy and climate plans shall consist of the following main sections:

- a) An overview of the process followed for establishing the plan consisting of an executive summary, a description of the public consultation and involvement of stakeholders and their results, and of regional cooperation with other Member States in preparing the plan;
- b) A description of national objectives, targets and contributions relating to the dimensions of the Energy Union;
- c) A description of the planned policies and measures in relation to the corresponding objectives, targets and contributions set out under point (b) as well as a general overview of the investment needed to meet the corresponding objectives, targets and contributions;
- d) A description of the current situation of the five dimensions of the Energy Union, including with regard to the energy system and greenhouse gas emissions and removals as well as projections with regard to the objectives referred to in point (b) with already existing policies and measures;

- e) Where applicable, a description of the regulatory and non-regulatory barriers and hurdles to delivering the objectives, targets or contributions related to renewable energy and energy efficiency;
- f) An **assessment of the impacts of the planned policies and measures** to meet the objectives referred to in point (b), including their consistency with the long-term greenhouse gas emission reduction objectives under the Paris Agreement and the long-term strategies;
- g) A **general assessment of the impacts of the planned policies and measures on competitiveness** linked to the five dimensions of the Energy Union;
- h) An annex setting out the Member State's methodologies and policy measures for achieving the energy savings requirement.

Furthermore, under Article 8, Member States shall describe their assessment, at national and, where applicable, regional level, of:

- The **impacts on the development of the energy system and greenhouse gas emissions** and removals for the duration of the plan and for a period of ten years following the latest year covered by the plan, under the planned policies and measures or groups of measures, including a comparison with the projections based on existing policies and measures or groups of measures as referred to in paragraph 1;
- The **macroeconomic and, to the extent feasible, the health, environmental, skills and social impact of the planned policies and measures** or groups of measures ..... including a **comparison with the projections based on existing policies and measures or groups of measures**. The methodology used to assess those impacts shall be made public;
- **Interactions** between existing policies and measures or groups of measures and planned policies and measures or groups of measures within a policy dimension and between existing policies and measures or groups of measures and planned policies and measures or groups of measures of different dimensions. Projections concerning security of supply, infrastructure and market integration shall be linked to robust energy efficiency scenarios;

Source: [https://energy.ec.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2018.328.01.0001.01.ENG&toc=OJ:L:2018:328:FULL](https://energy.ec.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.328.01.0001.01.ENG&toc=OJ:L:2018:328:FULL)

The integrated NECP approach requires a coordination of purpose across all government departments. It also provides a level of planning that aims to ease public and private investment. The fact that all EU countries are using a similar template means that they can work together to make efficiency gains across borders<sup>7</sup>. Each Member State must submit a progress report each two years.

The EU Regulation on the Governance of the Energy Union and Climate Action (EU 2018/1999) requires that an NECP should include an assessment of the impacts of the planned policies and measures (Box 4.5, bullet (f)); but it does not specifically state that countries undertake an SEA for the NECP.

Notably, the EU SEA Directive (2001/42/EC) (transposed into UK law) does not apply SEA to policies. But it does apply to energy plans, and NECPs are plans; and the EU Directive explicitly requires an SEA for energy plans. It does not appear that SEAs have routinely been undertaken when NECPs have been developed by EU member states. The UK did not prepare such an SEA for its draft NECP in 2020 (Box 4.8).

<sup>7</sup> [https://energy.ec.europa.eu/topics/energy-strategy/national-energy-and-climate-plans-necps\\_en](https://energy.ec.europa.eu/topics/energy-strategy/national-energy-and-climate-plans-necps_en)

#### Box 4.8: Environmental assessment of the UK's draft NECP

Section 5 of the report on the UK's integrated NECP (DBEIS 2020 Section 5) discusses the impact assessment of planned policies and measures. It sets out climate risks and the expected impacts (improvements) of proposed measures on air quality as well as the macroeconomic health, environmental, employment and education, skills and social impacts including just transition aspects. But these issues are described in very general terms in narrative format with some tables. It concludes that future investments will be likely to be highly sensitive to how climate change evolves over the next two to three decades. There is no indication of what impact assessment methodology was used, if any. If SEA had been applied to this plan and other NECPs, it would likely have addressed a much wider range of environmental and social concerns likely to arise when implementing the NECP.

Those member states that did undertake an SEA include Bulgaria, Ireland, and Slovenia (Box 4.9). But the 'quality' of these SEAs varies. Some were completed after the Strategic Environmental Management Plans (SEMPs (see section 3.5) started to be implemented, others are still not complete (e.g. Bulgaria). Only two of the SEAs could be judged as complying with the steps required by the EU Directive (Spain and Slovenia).

#### Box 4.9: SEA of NECP, Slovenia, 2019-202

Slovenia carried out a comprehensive SEA of its NECP in parallel to the plan process. It involved both internal (experts) and open scoping on effects, criteria, and measures. This involved extensive stakeholder participation, including a scoping workshop with interested ministries, organisations and NGOs as well as public discussion and a public presentation of the SEA report. The SEA addressed various key themes: mitigation and adaptation to climate change; population and health; sustainable use of natural resources; biodiversity and good ecological status of protected areas, including Natura 2000 European Ecological Network; protection of cultural heritage; landscape and stable society. The significance of likely impacts was assessed for four scenarios: existing measures; additional measures 1; additional measures 2; and an ambitious scenario with the recommendations of the European Commission 2030 with a view to 2050.

The SEA was prepared by an external team of SEA experts. The process of plan preparation was led by the Ministry of infrastructure and the SEA process by the Ministry of the Environment and Spatial Planning, which issued an opinion on the SEA Report quality and an environmental acceptability decision (after checking that environmentally accepted measures and mitigation measures were included in the plan).

##### Sources:

- a) Vesna Kolar Planinšič, Ministry of Environment and Spatial Planning, Slovenia.
- b) <https://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/nacionalni-energetski-in-podnebni-nacrt/dokumenti/%23c96>

#### 4.4.2 EU applicant countries

Contracting parties (countries aspiring to join the EU) of the Energy Community<sup>8</sup> are also developing NECPs (first drafts due by June 2023, final draft by June 2024). Unlike EU member states, they are

<sup>8</sup> The Energy Community is an international organisation (established by treaty in 2005) which brings together the European Union and its neighbours to create an integrated pan-European energy market ([www.energy-community.org](http://www.energy-community.org)).

obliged by an SEA Decision of the Community's Ministerial Council<sup>9</sup> and the Governance Regulation of the Community<sup>10</sup> for SEAs to be prepared when preparing such plans. Their preparation is monitored by the Energy Community Secretariat. To date (February 2023)<sup>11</sup>, the following have been completed:

- Albania: the NECP was adopted before the SEA was completed. The NECP will be reviewed to reflect the SEA findings before finalisation.
- Macedonia: adopted the NECP without the (obligatory) consent of the Ministry of Environment to ensure its alignment with the SEA and that public comments have been considered. The NECP will be reviewed before finalisation.
- Georgia, Montenegro and Serbia are currently undertaking SEAs for their NECPs.
- Other countries are in the early stage of the NECP process, except for Ukraine due to martial law and the ongoing conflict with Russia.

#### 4.5 Steps in undertaking an SEA for an energy sector PPP

As for any SEA, one carried alongside or as an integrated component of developing or reviewing an energy sector policy, plan, programme of equivalent (e.g., a strategy), should follow the basic stages and steps set out in Chapter 3.

In most countries having legislative or regulatory requirements for SEA, energy sector PPPs are specifically identified as requiring an SEA. Similarly, multilateral development banks usually require an SEA/SESA to be completed when they are providing funding for energy sector development such as initiatives to support the energy transition. Examples regarding the latter include an SEA initiated by the Asian Development Bank in Indonesia (in 2022) and scoping for a possible SEA in the Philippines (in 2023) - both linked to implementing the Energy Transition Mechanism in countries in Southeast Asia.

#### 4.6 Key concerns that an energy PPP will need to address

The main sources of non-renewable energy of critical concern as regards climate change are carbon-based fossil fuels such as coal, oil, and natural gas. These are burned to generate energy in power stations and internal combustion (vehicle) engines.

As far as reducing reliance on fossil fuel-based energy production is concerned, this guidance focuses on the need for retirement of coal-fired power plants and the closure of associated coal mines (Chapter 11). The renewable energy sources addressed by the guidance cover: hydropower (Chapter 5), wind (Chapter 6), solar (Chapter 7), bioenergy (Chapter 8), geothermal (Chapter 9) and tidal (Chapter 10).

For all these sources, there is a relatively common set of issues for which there is potential for environmental and socio-economic impacts to arise for which management and mitigation measures need to be addressed (see Tables 4.4 and 4.5, respectively). The specifics of these likely impacts for different energy sources are addressed in subsequent chapters.

Given the challenges of climate change and international commitments concerning GHG emissions, new or revised energy PPPs need to focus on how to change the balance in energy sources to reduce emissions and to promote and invest in renewable energy options. Many countries have already made considerable progress in this transition. An SEA for a national or more local energy PPP seeking to promote this transition will need to address all these issues (as applicable).

<sup>9</sup> [https://www.energy-community.org/dam/jcr:33b7fa10-df38-44ae-b2bf-58c250a4a298/Decision\\_2016\\_13\\_MC\\_ENV.pdf](https://www.energy-community.org/dam/jcr:33b7fa10-df38-44ae-b2bf-58c250a4a298/Decision_2016_13_MC_ENV.pdf)

<sup>10</sup> [https://www.energy-community.org/dam/jcr:c755f9db-f6e7-448c-9cf5-0a5f02113ae2/19thMCDDecision14\\_CEPIL\\_30112021.pdf](https://www.energy-community.org/dam/jcr:c755f9db-f6e7-448c-9cf5-0a5f02113ae2/19thMCDDecision14_CEPIL_30112021.pdf)

<sup>11</sup> Information provided by Energy Community Secretariat, Vienna

**Table 4.4: Key environmental issues associated with closing coal-fired power plants/coal mines and developing new renewable energy facilities**

Theme	CFPP	Coal Mines	Geotherm	Hydro	Solar	Tidal	Wind	Bioenergy
	Early Retirement	Closure	Development					
Integrity of habitats and preservation of biodiversity								
Integrity of protected & sensitive areas								
Delivery of ecosystem services								
Maintenance of air quality								
Fresh water use/demand								
Maintenance of water quality								
Waste (solid, gas, liquid, toxic, hazardous, spoil) & pollution								
Land/water contamination								
Noise and vibration								
Greenhouse gas emissions								
Land degradation (erosion/sedimentation/deforestation)								
Land/marine use change								
Flooding								
Hydrological change (rivers, estuaries)								
Demand for mineral extraction								
Risk of earthquake damage								
Land drainage								
Visual impacts								

**Note:** Issues may be directly related to the retirement/closure of CFPPs/mines or development of RE facilities; or indirectly to the need for associated infrastructure (e.g. access roads, transmission lines) and material sourcing (e.g. minerals).

**Table 4.5: Key socio-economic associated with closing coal-fired power plants/coal mines and developing new renewable energy facilities**

Theme	CFPP	Coal Mines	Geotherm	Hydro	Solar	Tidal	Wind	Bioenergy
	Early Retirement	Closure	Development					
Economic growth								
Legacy socioeconomic issues								
Employment and labour conditions								
Local economy and livelihoods								
Gender and vulnerability								
Indigenous communities								
Food security and price								
Skilled workers								
Health and safety								
Physical and economic displacement								
Conflicts								
Migration								
Community engagement and cohesion								
Public services and infrastructure								
Cultural heritage								
Human rights								

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**Note:** Issues may be directly related to the retirement/closure of CFPPs/mines or development of RE facilities; or indirectly to the need for associated infrastructure (e.g. access roads, transmission lines) and material sourcing (e.g. minerals).

#### **4.7 Designing the SEA process and challenges in implementing its recommendations**

When designing the process of an SEA applied to an energy PPP, it will be important to ensure that it has the best chance of supporting and influencing the plan, i.e., to ensure that the SEA is as effective as possible. In this regard, it is critical that the government agency commissioning the SEA considers how the SEA can be integrated with the PPP process to the greatest extent possible. Section 1.5 (Chapter 1) provides a discussion of how SEA relates to the PPP development process and how *ex ante* SEA provides the best opportunity for influencing PPP preparation.

In seeking to best design the SEA process, the expert team will need to work with the relevant government agencies to clarify the process and steps involved in developing a new, or revising an existing, energy PPP. This is necessary to determine when critical steps and decisions in PPP development will be made and when products and recommendations of the SEA can best support and inform the PPP process.

At the same time, when designing the SEA process, the key actors involved in developing/revising the PPP should be identified and a strategy developed to make sure that they are informed of the SEA, understand how it can help their work, and are involved in (e.g., kept informed) of SEA progress, and receive essential information at appropriate and critical times.

A key product of an SEA will be a Strategic Environmental and Social Management Plan (SESMP) (see section 3.5 and Annex 16 which sets out the recommended content of a SESMP). The SESMP should be developed in close consultation with those government and non-government agencies and organisations that are likely to have a role in its implementation so that they are involved in agreeing its contents and recommendations, verifying that they are achievable and proportionate to identified key issues, and to ensure that roles, responsibilities are fully understood and 'bought into'. A key challenge to implementing SESMP recommendations (e.g. for environmental or social management or for monitoring key indicators) is that there is often a lack of adequate technical skills, capacity and equipment, and budget allocations may be insufficient. This means that the SESMP should address where capacity strengthening and/or training may be required, and it should be fully costed where possible.

Furthermore, there is sometimes a lack of clarity over institutional mandates and jurisdictions, and thus rivalries and 'defence of turf'. This may be the result of unclear or overlapping legislation/regulations. It can lead to institutional conflicts regarding roles and responsibilities to implement SEA/SESMP recommendations. These potentials should be addressed and solutions found when consulting on the content of the SESMP.

Once the implementation process has been agreed to by all parties involved, it will be critical to monitor the progress of implementation and make any additional changes required that are needed to ensure success.