

ADOPTING STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) IN DEVELOPING POWER DEVELOPMENT PLANNING (PDP) IN VIET NAM

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Abstract: *This document lays out the experience of Viet Nam in the integration of a Strategic Environmental Assessment (SEA) into the preparation of the country's Power Development Plan (PDP). It briefly describe the adoption of SEA into PDP VI in Vietnam, which was mainly to identify the impacts of large hydro power plants in the country, also suggested alternatives to reduce the impacts in designing PDP. It showed that Vietnam was from having no experience with SEA integration to having the SEA fully integrated into the PDP process. The latest version of the PDP—the revised PDP VII (RPDP VII)—can now be seen as a model of good practice in integrating an SEA in the preparation of a strategic plan for the power sector of other country. The full integration of the SEA went through several iterations and was accompanied by the development of capacities and impact assessment methodologies as well as the emerging challenges. It showed how an SEA, when fully integrated into the strategic planning process, will result in better plans that are based on a more thorough understanding of the plan's implications for the economy, society, and environment of the country.*

1. The first use of Strategic Environment Assessment as a tool to develop PDPs

In Hydropower Master Plan prepared for the country, it seemed to be the first time Strategic Environmental Assessment (SEA) was integrated into the Power Development Planning (PDP) in Viet Nam within the context of PDP VI. This pilot SEA considered the potential impacts of the 21 large-scale hydropower plants included in PDP VI. A number of scenarios were considered, which included the scenario to enhance the existing plants included in PDP VI while others to progressively reduce the number of hydropower schemes and replace them with the least-cost alternatives (generally thermal power). All of these scenarios were identified through the PDP developing process¹. The impacts of the 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.

It showed that SEA was a very useful tool to analyze hydropower's potential impacts on communities and the environment within and beyond the immediate vicinity of hydropower construction. It also provided a mechanism to identify and assess appropriate mitigation and compensation measures, including actions to reduce risks and compensate for any negative impacts.

¹ Asian Development Bank (2018)

Through the application of SEA during developing PDP, it was proved 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. As the results, a model was developed to fully integrate SEA into plans for the sector, which then was used in the development of the SEA in PDP VII². The original PDP VII was prepared in 2011–2012 to guide the development of the power sector for the period 2011–2030. It analyzed future electricity demand scenarios by sector, in relation to potential economic and social development trends. In addition, it assessed the most effective, least-cost power generation options for meeting future demands. The 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 process³.

2. SEAs are as tools to amend PDPs according to the current context of climate change, reflecting the social, economic development and available natural resources

To comply with Environment Protection Law 2014, which implies that climate change factors have to be considered during strategic environment assessment process for policy, plan and programme⁴, the “Vietnam National Power Development Master Plan for the 2011- 2020 period with a vision to 2030” (RPDP VII) has been approved by the Government in 2016, which was revised to reflect climate change situation in Vietnam.

The SEA works for RPDP VII were carried out in 2014 and the SEA report was reviewed and appraised in March 2015. Mid-year 2015, the Minister of Ministry of Natural Resources and Environment submitted a report of the SEA review results to the Prime Minister and, on March 2016, Prime Minister issued Decision No. 428/QĐ-TTg dated 18/3/2016 to approve the Master Plan. In the SEA report, there are a number of important aspects considered, including power security, water resource depletion, pollution from coaled thermal power plant, new trends for renewable energy. Being reflected from SEA outcomes, the RPDP VII also was being adjusted according to fit with the report research results and findings. It is clearly stated in the Master Plan that, in Vietnam context, future development trends are less-dependending on hydro power, no-more construction of large-scale hydropower plants, reduced usage of coaled thermal power and increasing

² Vietnam electricity -EVN (2016)

³ SEA report of National Power Development Master Plan for the 2011- 2020 period with a vision to 2030

⁴ Section 4, Environment protection law 2014

investments in renewable energy sources. As the results, the SEA research had worked to address issues, based on climate change scenario, to adjust previous PDP for Vietnam.

In addition, the report on climate change scenario for Vietnam 2018 shows that Vietnam is considered as one of the countries which are affected by climate change, indicated by the rises in average temperatures over the last decades, as well as substantial changes to precipitation patterns. The average temperatures have been rising and the total precipitation has increased, especially during the rainy seasons, which is important for flood water management. In northern Vietnam the precipitation during the dry seasons has decreased, which poses important challenges to water resource management.

The impacts of climate change are said to be unpredictable in incoming decades, especially the impacts on average temperature and water resource across the country. Impacts of climate change on annual flows vary between regions and river systems across Vietnam. Due to unpredicted fluctuations of water resource, the occurrence of more extreme weather events, and extended impacts from constructing large hydro-power plants, the Government realized that the construction of high capacity plant will be inefficient and costly besides many risks associated. Instead, to ensure power securities and protect the environment and biodiversity, there is a need to increase the number of small hydropower plants and to develop other source of energy apart from hydropower⁵.

In the next decade, coal-fired power plants seem to be the main contributor to the national source of power, however, the domestic coal supply is predicted to be short to meet the future demands and this type of energy generation is said to be associated with a lot of environmental problems especially greenhouse gas emission and solid waste management.

As the results, considering the climate change factors, the RPDP VII aims to increase the share of renewable energy to around 7% in 2020 and more than 10% in 2030; reduce the use of coal-fired electricity; reduce number of high capacity hydropower plants in order to ensure energy security, climate change impacts mitigation, environmental protection, and sustainable socio-economic development

RPDP VII has been made to include a few scenarios and the overall assessment shows that the impacts of such scenarios were not very different from each other: all showed a marked reduction of potential impacts, especially from thermal power,

⁵ SEA report of National Power Development Master Plan for the 2011- 2020 period with a vision to 2030

when compared with those in the SEA of the original power development plan. The RPD VII proposed an expansion of Viet Nam's generating capacity to meet predicted future patterns of demand, but it also found ways to reduce potentially adverse impacts of such expansion without compromising the technical and financial viability of the proposals. The need to reduce the impacts of and dependence on coal-fired power generation has made changes to the plan that reduced the negative impacts of power sector growth on the people and environment of the country. This clearly demonstrates the benefits of integrating an SEA in the strategic power sector planning system. It also allows the state policies and development objectives to be incorporated in the plan proposals and provides a better understanding of the implications of different development approaches.

The use of SEAs in PDP has evolved from the original SEA of PDP VI that focused on hydropower and was executed once the PDP was completed, to the SEA that was integrated into the revised PDP VII and helped define the overall plan. This change in the SEA's role in the power development planning process has benefited the country, but some challenges still need to be addressed before Vietnam can be said to have a fully developed PDP process integrating an SEA.

3. Challenges to be considered to have SEA fully integrated into PDP

The development of the SEAs in the PDP system in Viet Nam represents an evolution from the original SEA of PDP VI, which focused on hydropower and was executed when the PDP was completed. The SEA in the original PDP VII was conducted at the same time as the main planning exercise but was not fully integrated into it. Ultimately, the SEA was integrated into the RPD VII and helped to define the overall plan. This evolution of SEAs in the PDP process has brought considerable benefits, although a number of challenges remain before Vietnam can be said to have a fully developed PDP with SEA process. These challenges relate to the following⁶:

- (i) Improving the power system modelling programs used in the PDP needs to reflect the shift in focus from conventional large-scale generation options to a more diversified portfolio of activities in the plan, along with the inclusion of relevant environmental and social costs and benefits.
- (ii) Improving the input database for power system modelling comes with a detailed definition of cost of investments, and externalities and related benefits.

⁶ Asian Development Bank (2018)

This development of the database will ensure that the cost calculations of future PDPs can accurately reflect the full economic costs to Viet Nam's economy and society of the different power generation options considered in the plan.

(iii) Improving the relationship between the national-level power sector planning process and provincial-level planning process, especially in the development of renewable energy sources such as solar, wind, biomass, and small hydropower plants, is important. The preparation of related SEAs at the provincial level must be improved as well to reflect the policy that provinces are responsible for the planning of power generation facilities smaller than 30 megawatts (MW). At present, few provinces have the capacity to plan such investments in an effective manner that takes account of the full range of economic, social, and environmental costs involved.

4. Future tasks to accomplish full integration of SEA into PDP VIII

The above challenges suggest that, notwithstanding the significant progress made in recent PDP cycles, there is a need to improve the PDP process to fully integrate SEAs. As the results, the Ministry of Industry and Trade, the responsible agency has been assigned by the Prime Minister, should act to ensure the preparation of a methodological and procedural framework for a PDP that fulfil the following requirements⁷:

- Addressing the abovementioned challenges and thus, fully integrates SEA into PDP,
- SEA should reflect Vietnamese legislation and government procedures: recent changes in legislation, such as the new Law on Planning and laws relating to decentralization, must be reflected in any changes to the PDP preparation process.
- Identifying Vietnamese institutions which need to build their capacities.

The next PDP VIII, which is being prepared for approval in 2020–2021, will be a great opportunity to reflect all the required changes and demonstrate suggested improvements. Should this next step in the evolution of the PDP process in Viet Nam be put in place, then the country can become an international model of good practice in modern power sector planning, taking account of all social and

⁷ Asian Development Bank (2018)

environmental impacts and taking advantage of opportunities that will be presented by the changing nature of energy technologies and markets in the coming years⁸.

Reference

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2. Ministry of Natural resource and Environment (2016), **Vietnam scenario for climate change and sea level raise 2016.**
3. Vietnam electricity - EVN (2017), **Developing power generation from renewable energy according to Power Development Mater Plan VII (adjusted version): Is it feasible?** [online at] <http://en.evn.com.vn/d6/news/Developing-power-generation-from-renewable-energy-according-to-the-Power-Development-Mater-Plan-VII-revised-version-Is-it-feasible-66-163-471.aspx>.
4. Vietnam electricity -EVN (2016), **Report of Revised National Power Development Master Plan for the 2011- 2020 period with a vision to 2030.**
5. Vietnam electricity - EVN (2016), **Strategic environmental assessment report of Revised National Power Development Master Plan for the 2011- 2020 period with a vision to 2030.**
6. Vietnam environmental protection law 2014.

⁸ Asian Development Bank (2018)