

Value of timely implementation of “better projects”



To meet the targets of a fully decarbonised and sustainable electricity system by 2050, the adaption and extension of the existing transmission system is crucial. This evolution of the grid has started, with approximately 80% of grid development projects identified in the Ten-Year Network Development Plan (TYNDP) 2018 being related to the integration of renewable energy sources (RES). Meanwhile, a significant share of projects encounters delays in implementation. These delays have two direct consequences for the EU achieving its carbon reduction targets: the missing grid capacity hinders the further growth and integration of RES, while the resulting grid congestion must be resolved by expensive and CO₂ intensive redispatch measures.

The delays in building the required infrastructure often result from fierce public opposition. To gain acceptance, efforts need to be put in place to engage with local citizens to address people's concerns and needs and to jointly develop approaches to protect nature. An approach we refer to as “better projects” aims at developing locally tailored, transparent and participatory planning

processes. A better project should be understood as a process that starts with improved stakeholder engagement and includes the implementation of the additional measures which result from stakeholder input. It is important to note that “better project implementation” reflects the above-mentioned elements and does not imply that money is paid to any party in the process to “buy” acceptance.

The “Good Practice of the Year” Award by the Renewables Grid Initiative (RGI) has shown that “better projects” can reduce potential conflicts and the risk of project failure, facilitate timely project implementation and keep up the good reputation of the energy transition. While “better projects” may have higher investment costs, the overall impact would be financially positive due to timely implementation. As policy makers and regulators have the responsibility to keep the overall costs for costumers low, it is therefore necessary to quantify the benefits of this approach, in order to measure its efficacy and cost effectiveness.

RGI facilitated the development of a methodology to compare the total costs and benefits of a “standard project implementation” which incurred delays with a “better project implementation” with timely delivery, but higher initial investment costs. Several parameters, both environmental and economic are considered in this comparison (socioeconomic benefit, redispatch volume, CO₂ emissions of the energy system, RES integration potential, losses, etc.). The methodology is based upon ENTSO-E's cost-benefit analysis (CBA), which has been approved by the European Commission (EC) for the TYNDP projects.

METHODOLOGY

The CBA approach is applied to make a sensitivity analysis for comparing the “standard” with the “better” project realisation. The methodology presented here, therefore, looks at the specific aspect of timely project delivery and does not substitute the standard CBA assessment. A grid project is designed to improve system performance, i.e., by providing higher capacity and better reliability. While these objectives remain unchanged, a “better project” should be understood as a process that starts with improved stakeholder engagement and includes the implementation of the additional measures which are resulting from stakeholder input. It is the way leading to a “better (version of a) project implementation”, in regard to stakeholder acceptance, land use, environmental impact and so on.

The methodological approach is to compare two different project alternatives:

Standard Project	Better Project Implementation
Investment Costs	Higher investment costs (project-specific)
Commissioning	Earlier Commissioning (3 years or project-specific)

For the comparison of the alternatives, the following monetized key parameters are considered so far and could be further extended in the next steps:

- Redispatch volume, losses
- CO₂ emissions of the energy system, RES integration potential
- Land use (if information is available)

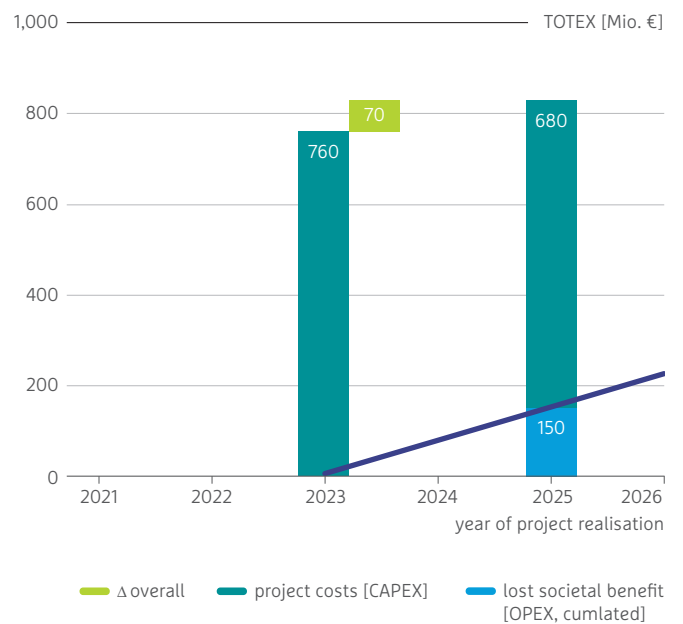
In order to provide comparative data for the re-dispatch volume, the difference in annual CO₂ emissions, the RES integration potentials as well as grid losses, grid and market simulations are conducted “with” and “without” the project for the forecast year of commission. These annual results are multiplied with the assumed difference of the commissioning date. As it is challenging to predict time delays for projects, a variation of the time delay (e.g. 3 to 5 years) within the calculation of the loss of benefits in the applied approach is recommended. If necessary, sensitivity analyses may be made.

ILLUSTRATIVE CASE STUDY

The figure below illustrates the potential benefit of a “better project” in comparison with a standard project implementation. This example is based on the project which includes the “Garenfeld substation” (Germany).

In this example the considered total project’s investments costs are 80 million € more than the “standard project”. The additional measures resulting from the stakeholder dialog include, among others, the purchase of land to move the substation to a different location, change of specifications of the transformers and measures for visual protection.

On the other hand, all citizens in the area agreed to the project implementation and did not bring the project to court. As a court case can take 2 years, this delay was not incurred and the estimated cost of such a delay of 150 million € (coming e.g. from redispatch costs) were saved. Thanks to the timely implementation an overall benefit of 70 million € can be achieved, which directly leads to a reduction of the consumers bill.



CONCLUSIONS

As shown in the example, costs of timely commissioned “better project” can reduce the overall bill for the consumer compared to standard projects. In addition to the cost relief for the customer, better projects can also bring value to the local population, support a positive image of the energy transition and reduce conflicts in society. Thus, it is important to further investigate these additional measures, their benefits and costs in order to reflect the different approaches in different countries.

This methodology is a first attempt to find, through the quantification of better projects, solutions for a sustainable grid development for the energy transition. Further efforts need to be put in place to engage with citizens to address their concerns and interest and jointly develop new approaches for creating benefits and protect nature. At the same time a regulatory framework would be beneficial for the energy transition in order to reduce costs for customers as well as investment risks for RES developers.

RGI, ENTSO-e and ACER started the process of discussion of this approach in order to assess it from a project promoter, societal and from a regulatory perspective.