

Additional costs of zero-emission construction sites

Hafslund Rådgivning and Oslo Economics have, on behalf of the Norwegian Environment Agency, calculated additional costs of the use of zero-emission machinery on construction sites. The report can be found in its entirety here: [Costs of the transition to zero emissions on building and construction sites](#).

Four reference projects with varying machine and infrastructure needs have been used to calculate the additional costs of zero-emission solutions within the construction sector. For three of the project types, updated calculations have been made based on investment costs for machinery instead of rental prices.

2 Major construction project in city



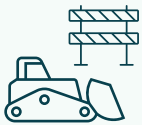
- Large machinery
- Drilling energy wells
- Varying energy supply

4 Small construction project in rural areas



- Small machine park
- Small project scope
- Limited access to energy

3 Small road project in the city centre



- Small machine park
- Relocation of rig site
- Varying energy supply



Additional costs have been calculated when using electric machinery compared to conventional ones, based on investment and energy consumption. Investment costs are spread over an 8 year service life. The calculations also include costs for cables, charging infrastructure and operational challenges associated with charging and immature technology.

In all three projects, the additional costs are mainly related to infrastructure and operational challenges. These two cost categories account for 100%, 60-75% and 90% of the additional cost for projects 2, 3 and 4, respectively, depending on grid access.

For several projects, the additional costs amount to less than 5% of the total project cost.

Over time, increased experience and improved battery capacity in the machines will reduce the additional costs for all projects, mainly due to a decreased need for charging infrastructure. Over the past five years, more than 200 fully or partially emission-free projects have been carried out in Oslo alone, and the industry is developing rapidly.

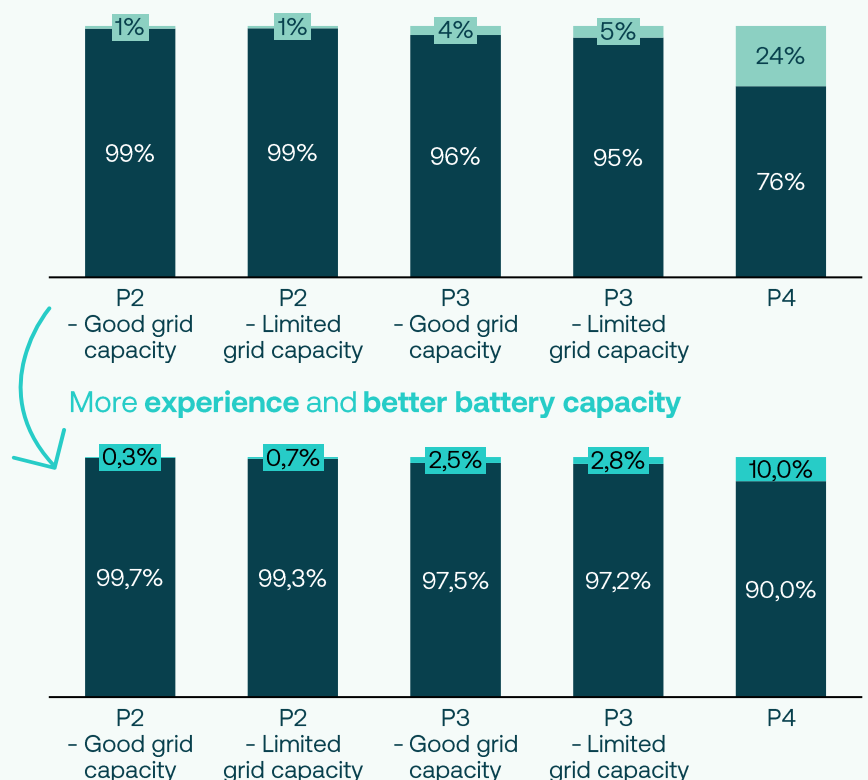


Figure: Additional cost as a percentage of total project cost