How Good Was It? Developing a Bottom-up Portfolio Impact Evaluation Scheme Getting Ex-post Project Assessments That Convey Uncertainty

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Projects Take Time, But We Want Numbers Now...

Enova SF grants support to Norwegian energy projects, and a growing number of supported projects have reached completion. Enova has recently started to collect ex-post project assessments on *realized energy results*, and has completed a pilot survey in 2010.

The larger energy projects in Enova's portfolio have more than 4 years average lead time from application until the planned project completion. Due to the long time span, we need estimates from different phases of the projects (application, completion and harvesting). Ex-ante estimates of annual energy produced or energy saved are provided as part of each project application, and these estimates are verified before any support is granted. Enova reports these initial estimates as *contractual energy results*, providing early feedback to the government and other stakeholders. When a project completes, final payment is contingent on an updated estimate. These are summarized as *end-reported energy results*.

How to Cope With Uncertainty?

Even though a project has been completed, the impacts are still uncertain. Energy saved or produced from operations are not fixed, but will fluctuate from year to year. Instead of focusing on a single point estimate, we ask for four figures (measured in kilowatt-hours): Energy result achieved *last year*, expected result in a *normal year*, expected *best case* result and expected *worst case* result.

Qualitative Results

Respondents should gain experience from operations before they do ex-post assessments. On the other hand they should not wait too long. Respondents recommend that ex-post assessments should be reported *three years* after the project is completed.

Impacts measured in kilowatt-hours are requested from each project, but the support programs differ substantially. Energy efficiency projects involve other calculations than renewable energy production. Respondents want questions as precise as possible, and due to the broad range of projects they need program specific explanations. They also want numerical examples to help them quantify energy results, in order to improve reliability of the study.

Respondents have provided several examples of spillover effects. These are currently not considered quantitatively by Enova; only direct effects are counted.

Respondents expressed positive attitudes towards the evaluation, and they were proud to show their achievements.

Quantitative results

We found that the initial estimates of energy results were optimistic. Ex-post assessments show that realized energy results are less than contractual and end-reported energy results. Respondents remain optimistic and expect on average 10% better results in a normal year than the impact achieved previous year. Best case estimates are on average 20% above the expected result in a normal year. Worst case estimates are on average 18% below the expected result in a normal year.