



Er CEEQUAL løsningen på framtidens bærekraftige anleggsprosjekter?

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- Hva er CEEQUAL og hvordan få til et CEEQUAL-prosjekt?
- Hva mener vi med bærekraft i anleggsprosjekter?
- Kjekt å ha eller reell nytteverdi?



Civil Engineering Environmental Quality Assessment and Award Scheme



Kincardine Bridge - Forth Crossing achieved an overall 'Very Good' CEEQUAL rating

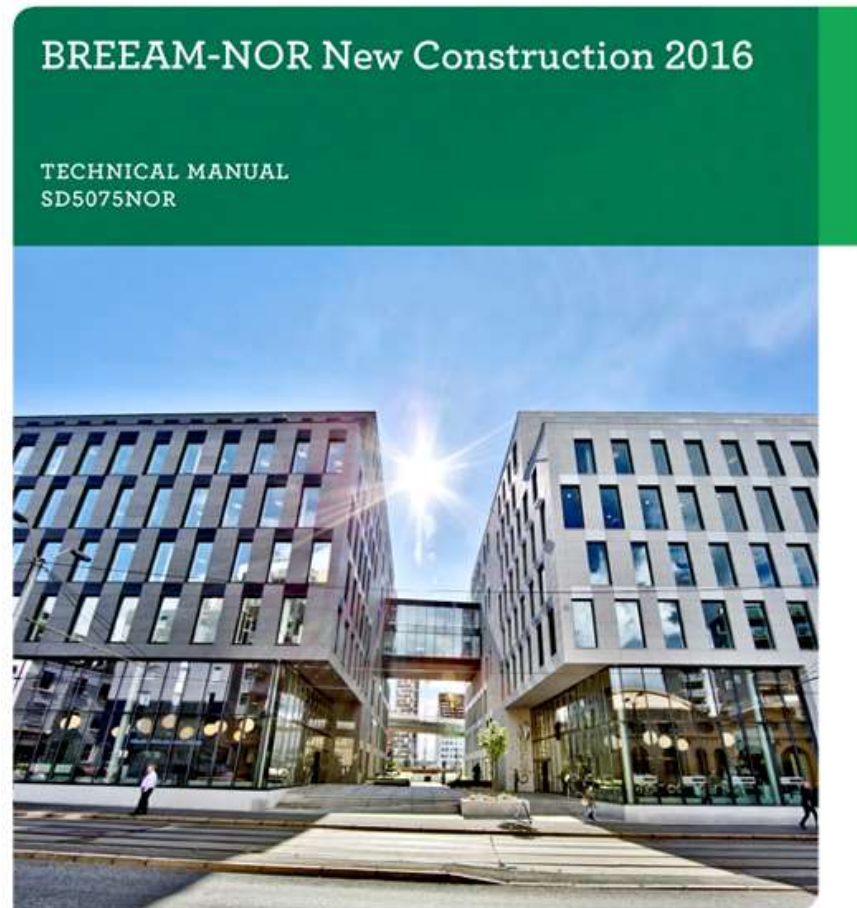


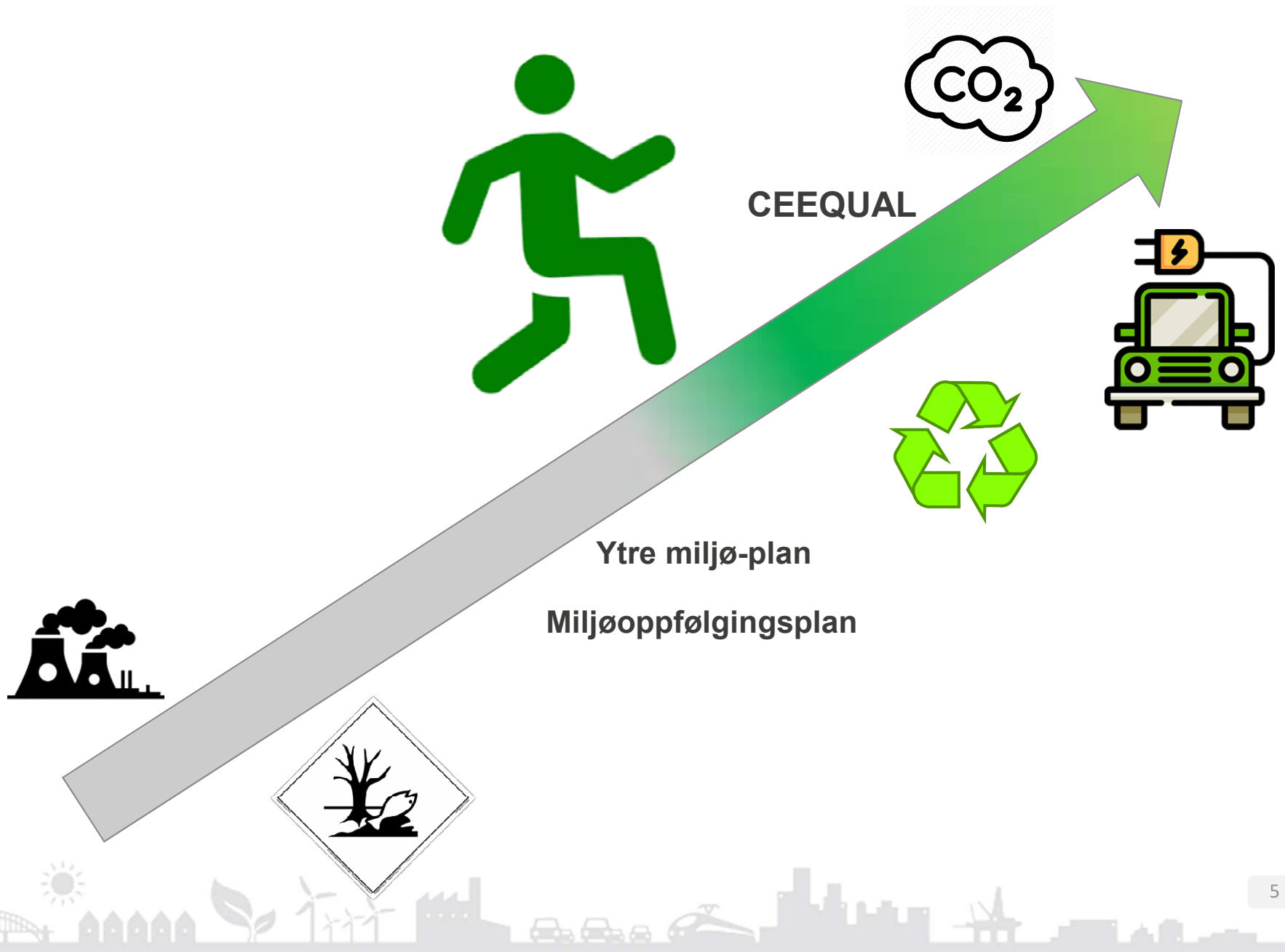
BREEAM-NOR

- Miljøsertifisering bygg
- Bransjestandard

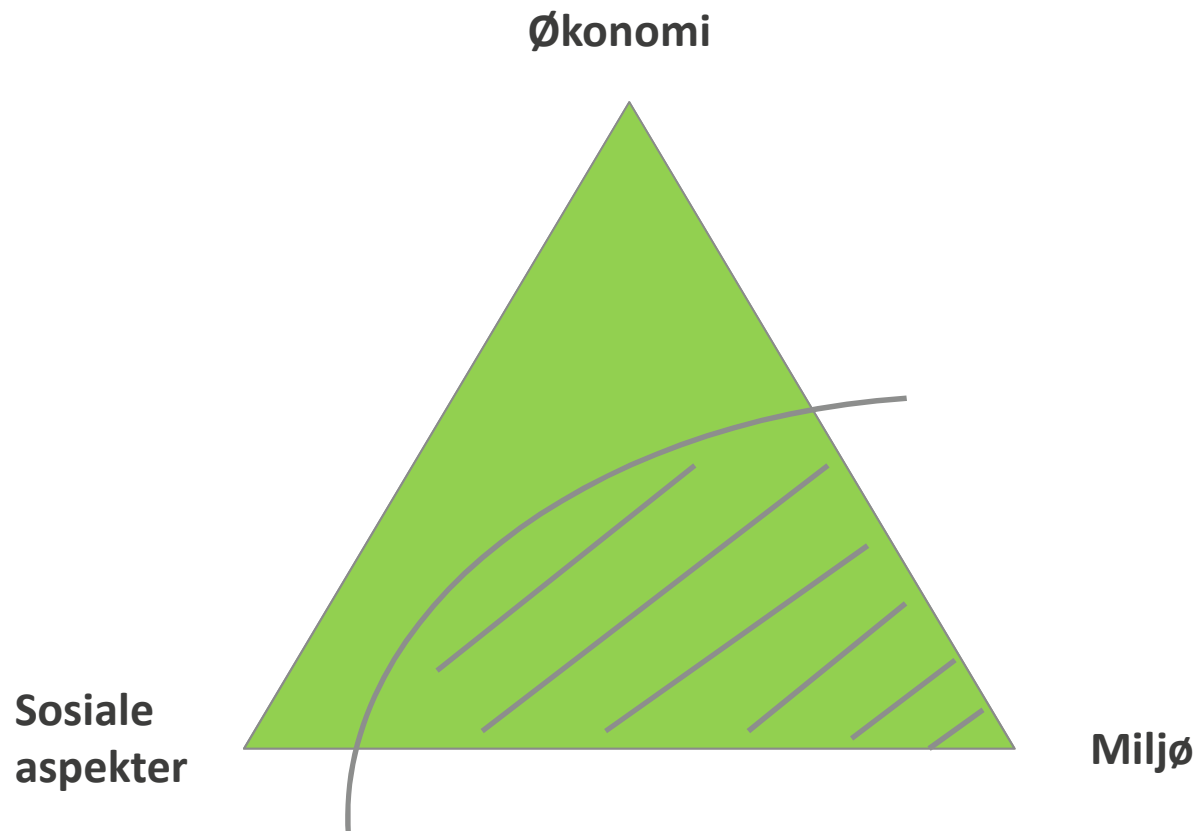


Omsorgsbygg Oslo KF





Bærekraft i anleggsprosjekter?

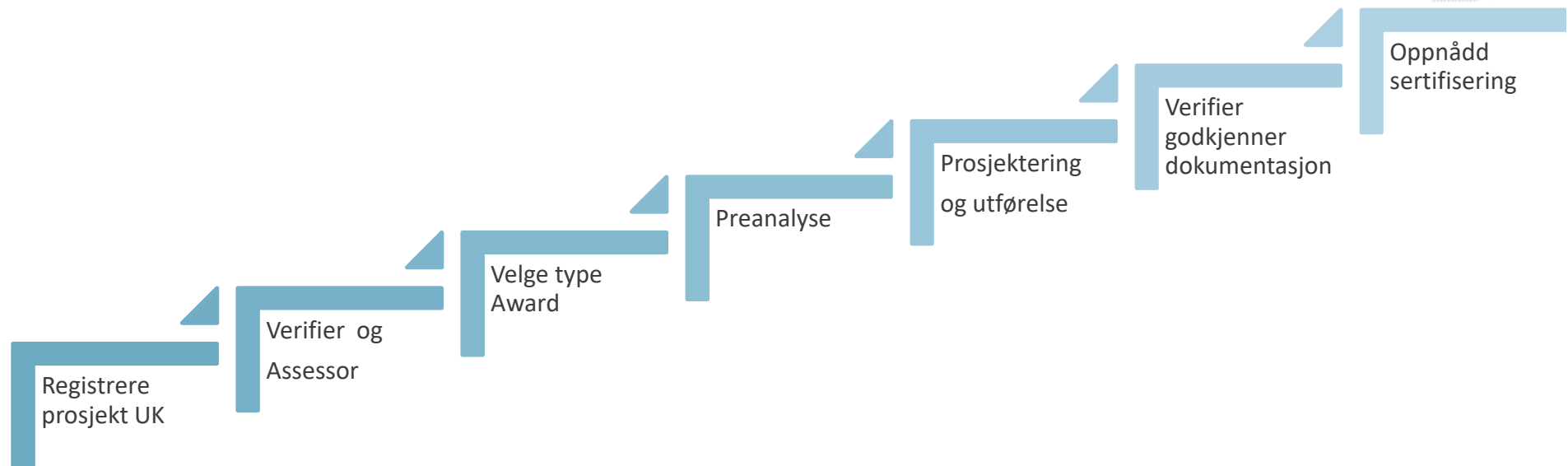


Temaer og vekting i CEEQUAL

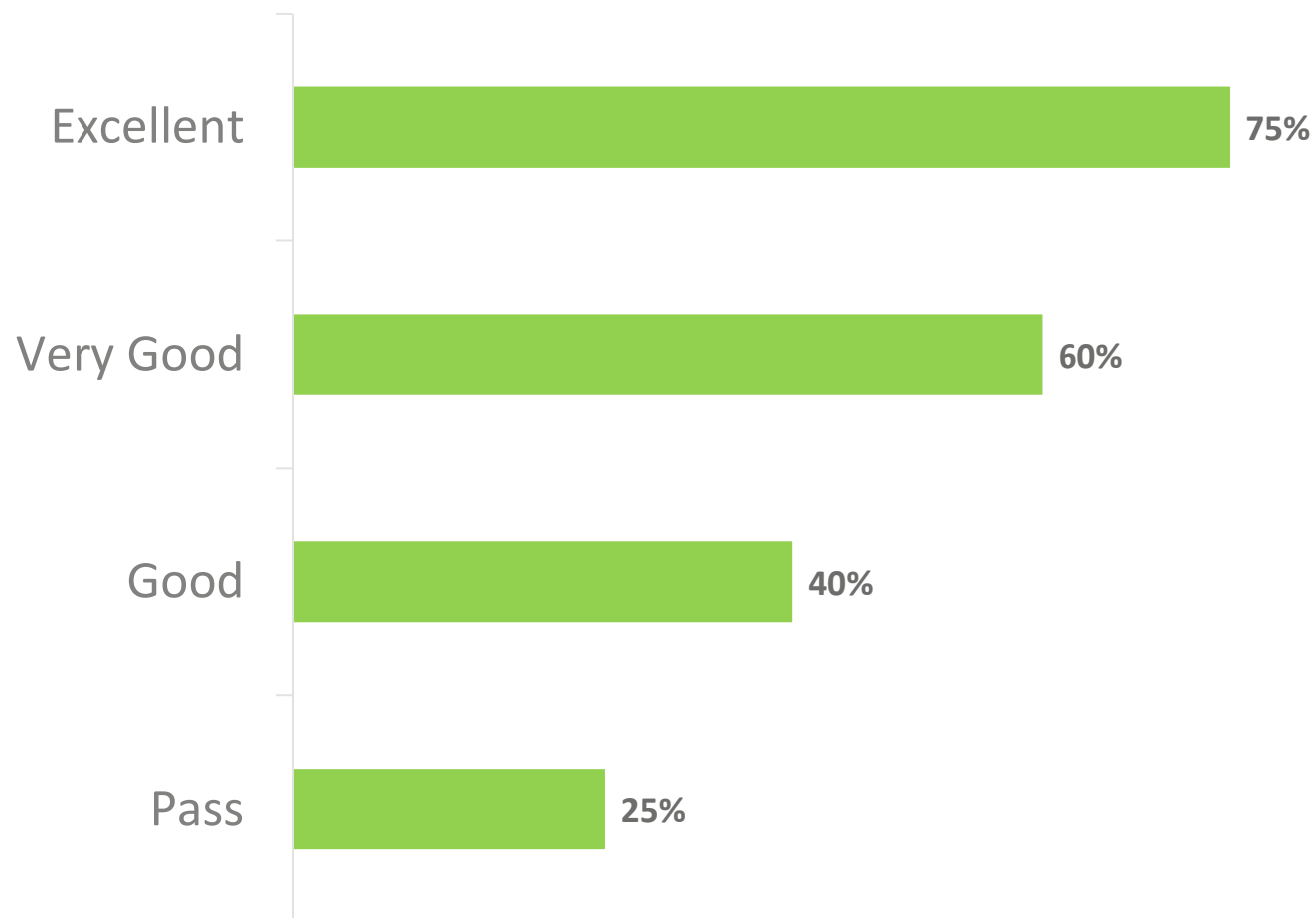
1. Prosjektstrategi – 14%
2. Prosjektledelse – 9%
3. Mennesker og omgivelser – 10%
4. Arealbruk og landskap – 18%
5. Kulturhistorie – 5%
6. Naturmangfold – 6%
7. Vannmiljø - 6%
8. Ressursbruk og håndtering – 27%
9. Transport – 5%



Hvordan oppnå et CEEQUAL-sertifisert prosjekt?



Ambisjonsnivå



Eksempel fra CEEQUAL-manualen

8.2.1 (M)	LIFE-CYCLE ASSESSMENT	Client	Design	Construct
56 pts	Has a Life-Cycle Assessment (LCA) been undertaken for the project? If No, score 0. If only a carbon footprint analysis, score 11. If a full LCA but only for key construction materials, score 28. If a full LCA covering all life-cycle stages, score 56.	56		
Scope-out Guidance	None – Question is Mandatory.			
Question Guidance	<p>The methodology for undertaking a Life-Cycle Assessment is defined in ISO14040: 2006 <i>Environmental management. Life-Cycle Assessment. Principles and framework</i>, and in ISO14044: 2006 <i>Environmental management. Life-Cycle Assessment. Requirements and guidelines</i>.</p> <p>This requires data to be collated from each manufacturing company. Over the next few years, this data collection will become easier as companies are required to publish Environmental Product Declarations in Europe and some other countries.</p> <p>Whilst a carbon footprint analysis is technically a much less comprehensive assessment than an LCA, it is currently a much more achievable assessment through use of one of the free calculators available. In addition, raw carbon emissions data is freely available from a number of sources, including the Inventory of Carbon and Energy published by the University of Bath in the UK.</p> <p>A full life-cycle assessment must include assessment of the impacts of a range of different environmental impacts that arise through the full life cycle of the project, including raw material extraction, refinement and manufacture, transportation, impacts of the completed project in use and its eventual decommissioning, and disassembly or demolition. It is also possible to restrict the scope of a LCA to just the impacts arising from materials up to the point it is included in the works. This scope is required to score the middle level of points in the above question.</p> <p>For guidance on carbon-equivalent measurement, refer to the European Network of Construction Companies for Research and Development (ENCORD) CO₂ Measurement Protocol at www.encord.org/?page_id=260.</p>			
Evidence Guidance	Evidence could be a life-cycle assessment report or equivalent, or outputs from an appropriate software tool.			

Eksempel fra CEEQUAL-manualen

8.2.2 (M)	IMPLEMENTING REDUCTIONS IDENTIFIED IN THE LCA	Client	Design	Construct
56 pts	<p>What percentage of the reductions identified in the LCA undertaken in Question 8.2.1 has subsequently been incorporated in the project?</p> <p>*If under 10%, score 0. *If 10% to <20%, score 9. *If 20% to <40%, score 18. *If 40% to <60%, score 27. *If 60% to <80%, score 36. *If above 80%, score 45.</p> <p>Score an additional 11 for demonstration that the best LCA option was implemented.</p>	56		
Scope-out Guidance	None – Question is Mandatory.			
Question Guidance	<p>It is acknowledged that it is difficult to precisely measure the implementation of reductions. The key focus of this question is assessing what the project team (including the Client) have done with the knowledge learnt from the LCA and how they have balanced these issues to deliver improved environmental performance overall.</p> <p>*The scoring scale has been set as percentage reduction in acknowledgement of the fact that much industry decision making is based purely on carbon reduction. If a full LCA has been completed then a degree of interpretation may have to be applied to the scale to assess how much of what could be done has been done – this should be mutually agreed between the Assessor and Verifier. A final level of points is available if it can be demonstrated that the best LCA option was implemented; evidence for this is likely to require formal value engineering reports or design meeting minutes recording the rationale for the decisions being made.</p> <p>It is accepted that there may be practical difficulties in an interactive design process to identify precisely the scale of the reductions arising from undertaking an assessment. However, it is intended that savings are only taken from value engineering, redesign or specification changes and not the impacts associated with parts of a project or scheme that have been removed.</p>			
Evidence Guidance	<p>Evidence will need to reflect the points earned, and should include project records – such as minutes, technical reports and/or value engineering reports – showing to what extent the results of the assessment have influenced the choice of materials, components and design solution.</p>			

Eksempel fra CEEQUAL-manualen

8.10.3	BENEFICIAL RE-USE OF EXCAVATED MATERIAL	Client	Design	Construct
35 pts	<p>What percentage by volume of excavated material has been beneficially re-used on-site?</p> <p>If up to 30% re-used, score 0. If >30% to 50% re-used, score 14. If > 50% to 90% re-used, score 21. If > 90% re-used, score 28. If 100% re-used, score 35.</p>		35	
Scope-out Guidance	<i>Scope out only if the project produced no excavation arisings.</i>			
Question Guidance	<p>Design for re-use and recovery of materials already on site is fundamental to achieving materials resource efficiency, minimising the quantities of materials that have to be imported or exported from site. The ability to score for the design stage in this question reflects the importance of this stage in identifying and specifying materials for re-use especially as it is rarely possible to amend the design at construction stage to take advantage of any surplus excavation arisings.</p> <p>Re-use near the site, as opposed to on the site, is covered in Questions 8.10.4 and 8.10.5 on diversion of waste away from landfill. Re-use of excavated materials off site includes taking material to landfill if the material is genuinely inert and is used for beneficial re-use, such as for capping and other engineering purposes.</p>			
Evidence Guidance	<p>Evidence should include some form of calculation to demonstrate the points being awarded. This calculation could be on the basis of design calculations compared to information documented in the Site Waste Management Plan or equivalent and actual waste transfer notes or some other form of quantity surveying documentation.</p>			

Eksempel fra CEEQUAL-manualen

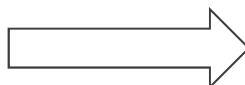
9.3.1 (M)	PLANNING CONSTRUCTION TRAFFIC MOVEMENTS	Client	Design	Construct
11 pts	Have construction traffic movements been reviewed or considered by the project team prior to the construction stage commencing? If No score 0. If Yes, score as indicated.	11		
Scope-out Guidance	None – Question is Mandatory.			
Question Guidance	The consequences of construction traffic upon all modes of transport, including on cycling and walking as well as vulnerable members of society, must be part of the consideration to score. Evidence could be baseline study data (a stand-alone report or produced as part of an EIA) but, where appropriate, could also be minutes of meetings where the issue has been actively considered.			
Evidence Guidance	Evidence is likely to be found in a TIA/Study, ES and/or contract documentation.			



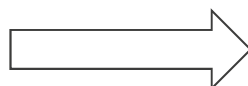
Hva sier byggherrene?



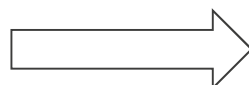
BANE NOR



Avventende



Positive, bestiller CEEQUAL



Svært positive

- Stiller krav til klimagassreduksjon i anleggsfase og driftsfase
- Kommer til å stille krav om CEEQUAL-sertifisering for E18-Langangen-Rugvedt



Status entreprenør og rådgiver

- Totalentreprenørene har forstått at bærekraft og miljøvennlighet er et konkurransefortrinn
- Ønsker forutsigbarhet
- Prosjekter:
 - Storåselva kraftverk – Skanska
 - OPS-Rv. 3/25-Løten-Elverum-Skanska
 - E6-Arnkvern-Moelv-Veidekke
 - Pågående 6 prosjekter
- 18 godkjente CEEQUAL-assessorer i Norge



Kostnader

- Sertifiseringsavgift:
 - Fra ca. 0,005% for de største prosjektene (*)
 - Fra ca. 0,008% for mellomstore (**)
- Ca. 85% av timene går til å øke kvalitet på miljøarbeidet
- Ca. 15 % går til ekstra dokumentasjon

(*) Gjelder for prosjekter med utbyggingskostnader for på ca. 4 mrd. og Award *construction phase*.

(**) Gjelder for prosjekter med utbyggingskostnader på ca. 2,5 mrd. Award *construction phase*.

Se <http://www.ceequal.com/fee-scale/> for spesifikke avgifter





Nytteverdi eller kjekt å ha?



- Målbare parametre
- Mindre tilfeldig og mer systematisk oppfølging
- Oppstrammende
- Utfordrer til forbedring og nytenking
- Redusert risiko
- Kostnadsreducerende
- Trygghet for at disse kvalitetene er ivaretatt i det ferdige anlegget
- Omdømme
- Konkurransefortrinn
- Stas

- Vanskeligere for mindre entreprenører
- Språkbarriere-manual på engelsk
- Tilpasninger til norske forhold
- Krevende?
- Ny måte å dokumentere på



Uttalelser

- *Vi ser at entreprenør deltar aktivt og at det faktisk gjøres vurderinger knyttet til miljø*
- *...bidratt til at vi har vært i forkant av at problemstillingene har dukket opp*
- *godt samarbeidsmiljø på prosjektet og skaper tillit mellom kunde og entreprenør*
- *Tydelig fokus på identifisering og tverrfaglig vurdering av alternative løsninger*
- *...bidro til en besparelse på ca. USD 132 millioner, noe som tilsvarte 8 prosent av de totale prosjektkostnadene*



Er CEEQUAL relevant for tunnelprosjekter?

JA!



Takk for meg!

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