

Environmental assessment of the ForskEL programme

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Why?

- ForskEL purpose:
 - to support the development and integration of **environmentally friendly** power generation technologies for grid connection

Is it really environmentally friendly?

How environmentally friendly?

Supporting any not friendly?

(2010)

"... not possible to conclude unambiguously whether [it] contributes to the improving the environment"

Past?

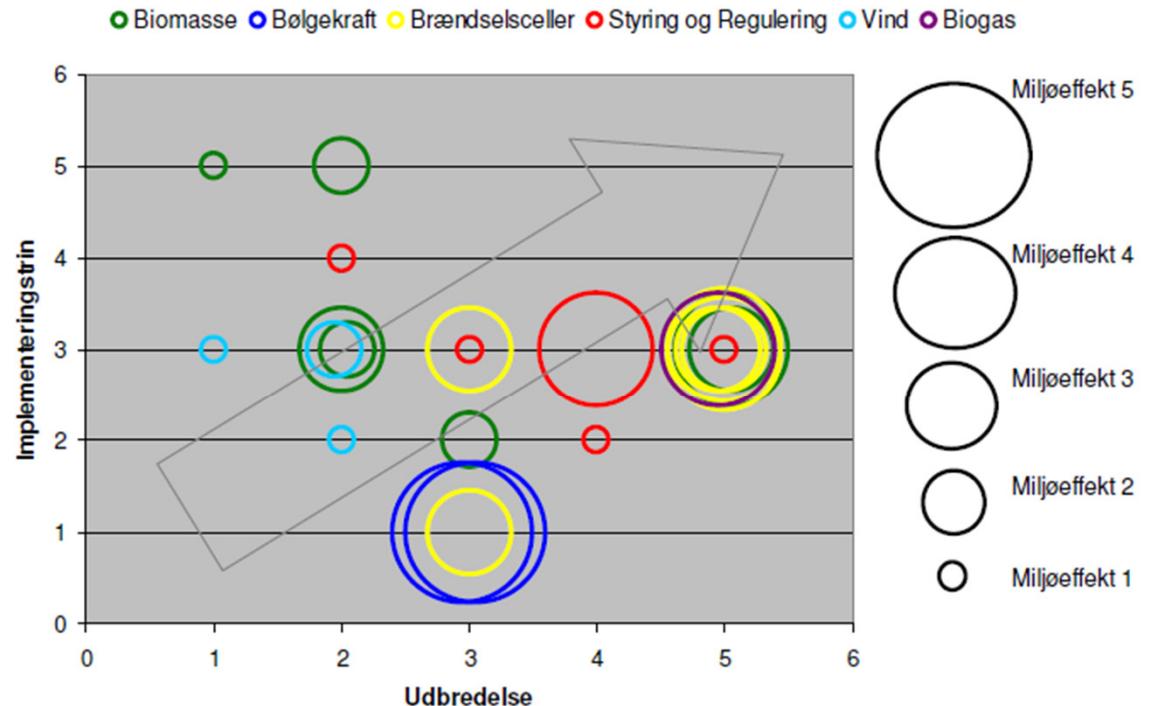
(2011)



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Miljøeffekter af projekter på ForskEL-plan 2010



	Biogas	Biomasse og affald	Brændselsceller	Bølgekraft	Kraftvarme	Smart Grid	Sol	Vind	Øvrige
1. Miljøforbedring	😊	😊	😊	😊	😊	😐	😊	😊	😊
2. Miljøbelastning	🙁	🙁	🙁	🙁	🙁	🙁	%	🙁	🙁
3. Øvrige miljøbelastninger	😐	😐	😊	😊	😐	🙁	🙁	🙁	🙁
4. Teknisk potentiale, se figur 1	😊	😐	😊	😊	😐	😐	😊	😊	😊
6. CO ₂ besparelse, se figur 2	😊	😐	😊	😊	😐	😐	%	😊	😊
10. Udbredelse	😊	😐	😊	😊	😊	😊	😊	😊	😊

Challenges?

Very different projects

- Big constructions vs paper reports
- Big uncertainty vs certainty
- Part vs technology

The responses

- Too optimistic
- Ambiguous
- Hidden assumptions

How?

Applicants to assess

- Most insight in the projects
- Structured approach to environment
- Asking about assumptions/basis

Inspired by strategic environmental assessment methodology

How?

Screening list

	Typiske direkte miljøpåvirkninger for større fysiske anlæg	(kryds)
	Brug af eksisterende udstyr og anlæg	
Fremstilling af nye anlæg og komponenter	Materialeforbrug (i kg): beton, stål, pontoner, murværk, mv.	
	Transport af materialer	
	Anlæggelse & gravearbejde/jordflytning, herunder gener for natur og beboere	
	Brug af grundstoffer og sjældne metaller	
Drift og vedligehold	Anvendelse af additiver, materialer, brændsler og forbrugsstoffer, herunder CO ₂	
	Udledninger til vand og jord, eksempelvis spildprodukter, udledning af giftstoffer (faste og risici)	
	Affaldstyper og mængder, herunder farligt affald	
	Emissioner til luft, eksempelvis NO _x og CO ₂ (Lokale-globale påvirkninger)	
	Gener for naboer (gener i forhold til støj, lugt, støv, visuelt, vibrationer, lys)	
	Fare ved brand, ekspllosion, giftudslip, mv.	

How

Screened significant → details

			<i>Amount</i>	<i>Uncertainty</i>	<i>Significance... Compared to.. Action to avoid..?</i>		
<i>Mulige/ typiske påvirkninger</i>	<i>Type/ hvilke</i>	<i>Pos. - neg.</i>	<i>Mængde/ omfang (om muligt per installeret kW)</i>	<i>Usikkerhed [Lille - stor]</i>	<i>Væsentlighed [uvæsentlig - væsentlig - uvis]</i>	<i>Sammenlignet med ...</i>	<i>Arbejdes der i projektet på at undgå, reducere, kompensere, eller forøge?</i>
Afkrydset påvirkning							
Afkrydset påvirkning							



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How?

Contribution to targets

Assumptions/uncertainties

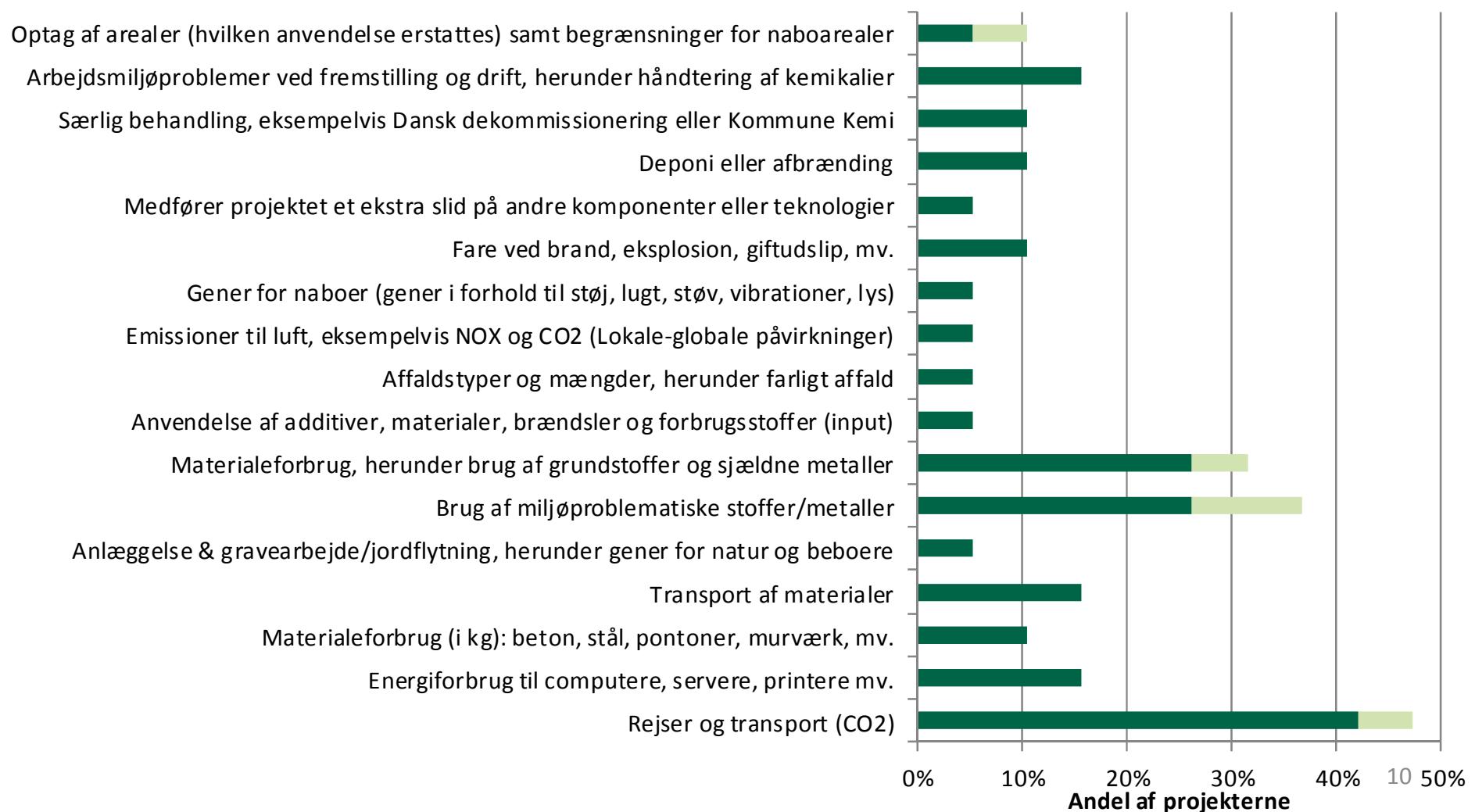
Mål	Projektets bidrag		Forudsætninger/usikkerheder
	Score	Argument	
20 % energieffektivisering i 2020	Score	Argument	
20 % reduktion af CO ₂ -udslippet i 2020	Score	Argument	
50 % vind i 2020	Score	Argument	
Kul udfaset af kraftværker og oliefyr udfaset i 2030	Score	Argument	
El og varmesektor dækket af VE i 2035	Score	Argument	
Hele energiforsyningen dækket af VE (på sigt)	Score	Argument	

Results?

- A range of negative impacts
 - Only few significant
 - Most significant dealt with
- A high contribution to the strategic focus areas of ForskEL
- A high contribution to national energy and climate targets

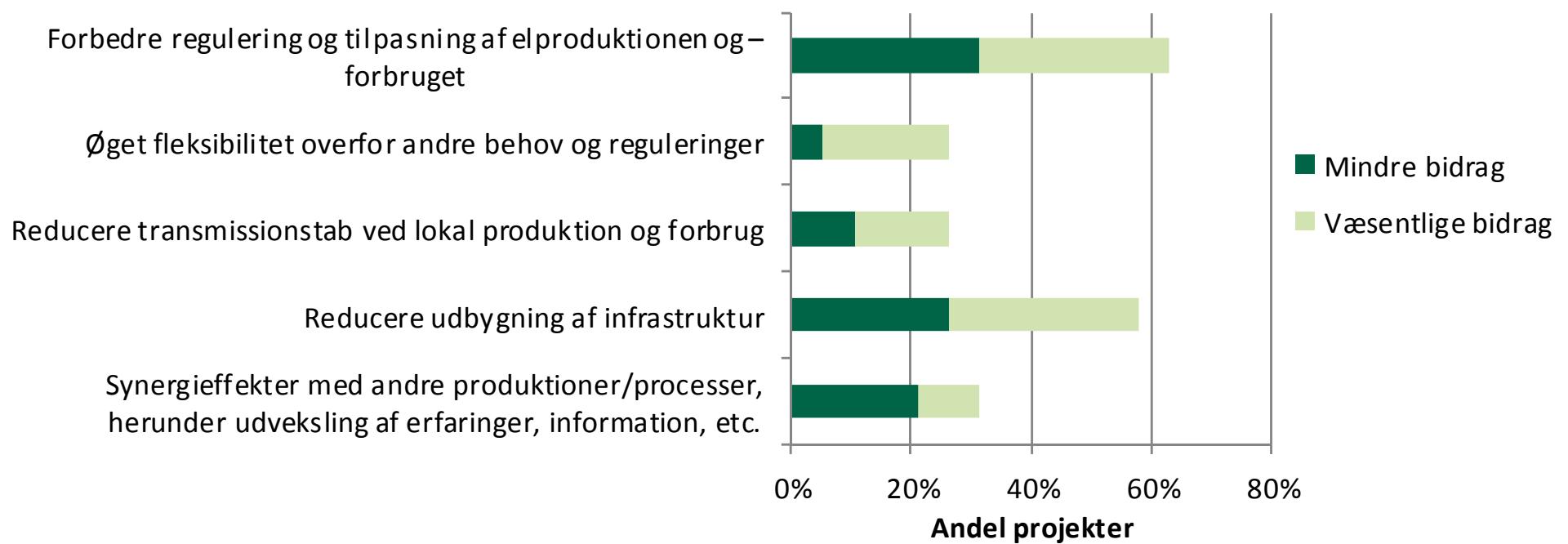
Frequency of direct environmental impacts

Hyppighed af direkte miljøpåvirkninger



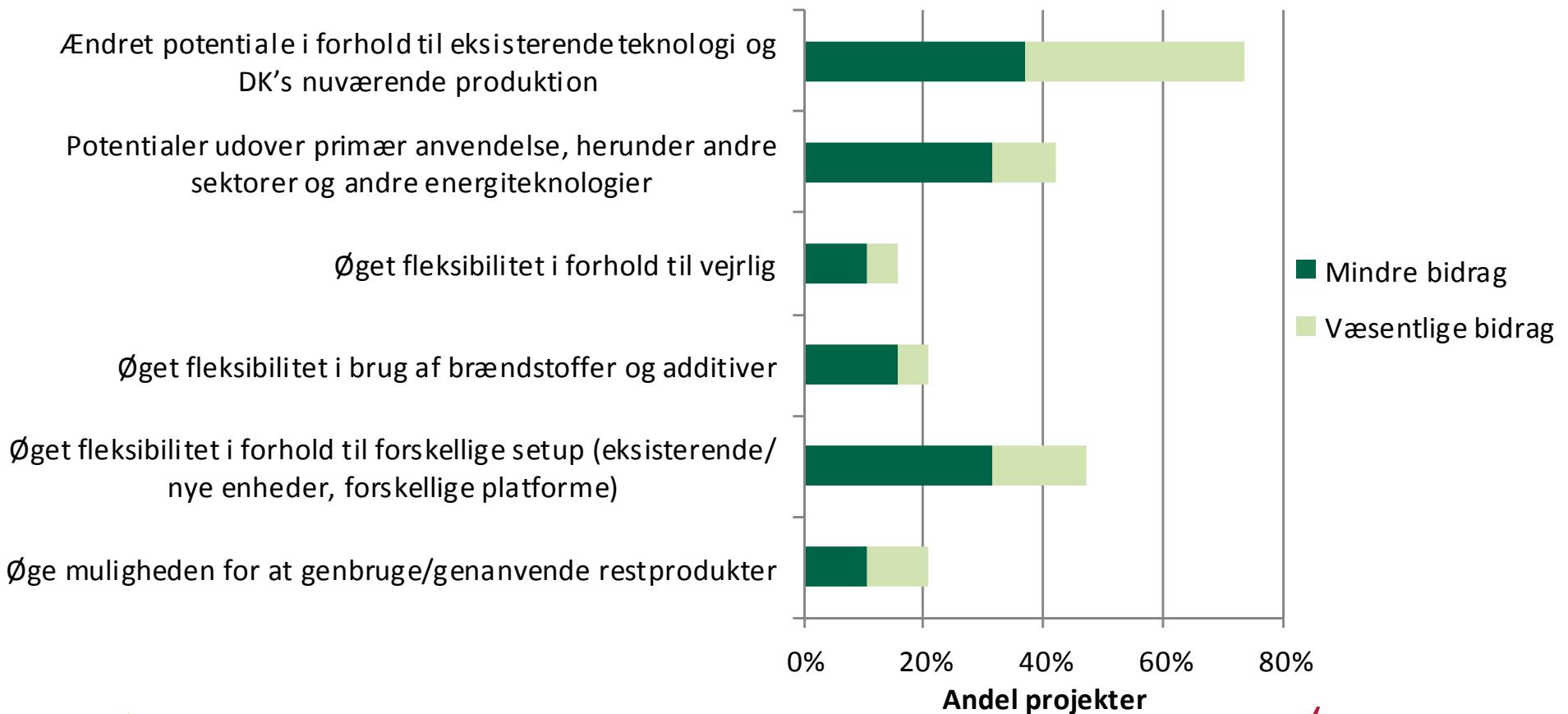
Contribution to ForskEL focus area

Styring og regulering af energisystemer (smart grid)



Contribution to ForskEL focus area

Fremitidens miljøvenlige elproduktion



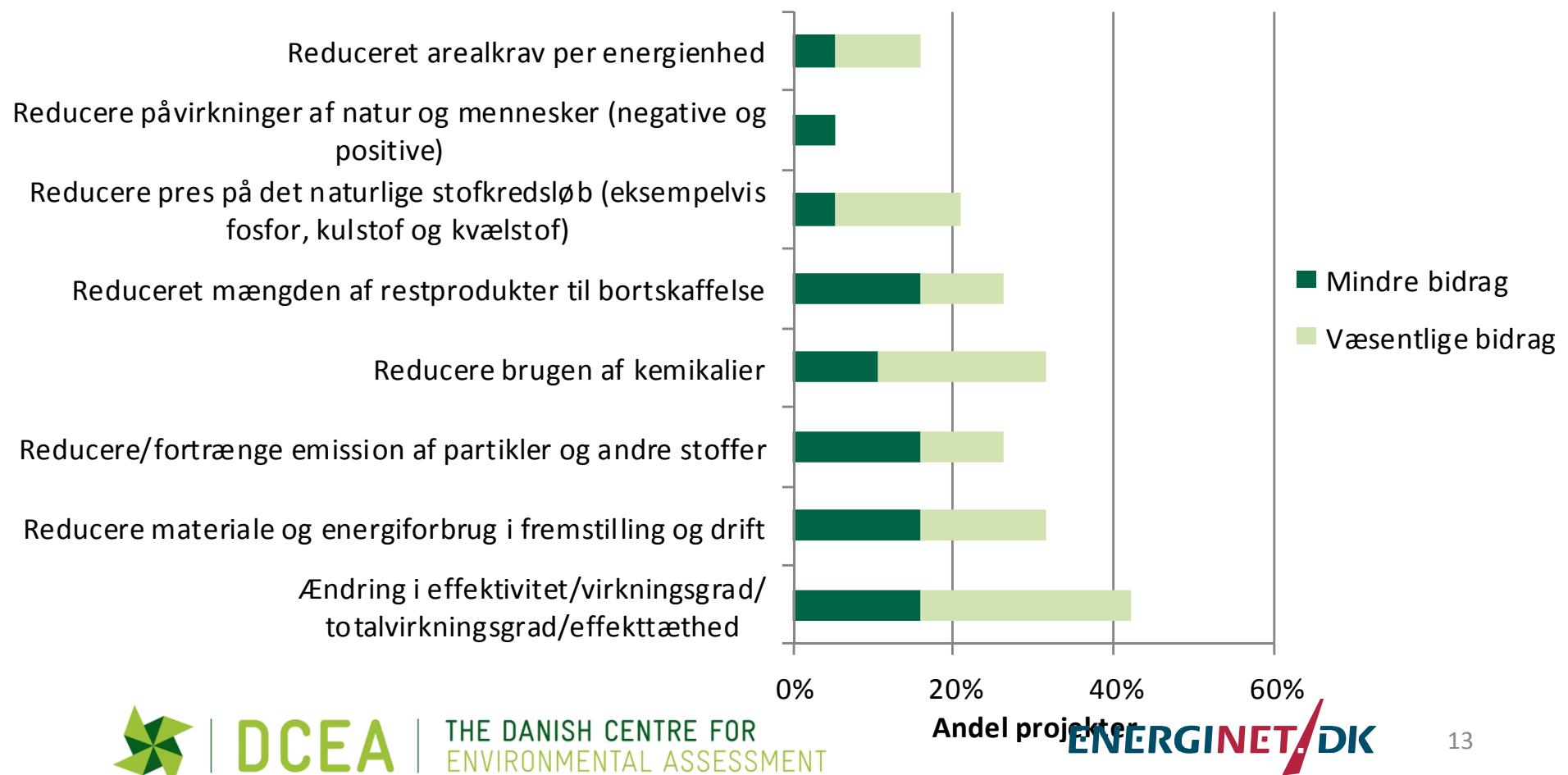
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Contribution to ForskEL focus area

Miljøforbedringer og effektiviseringer



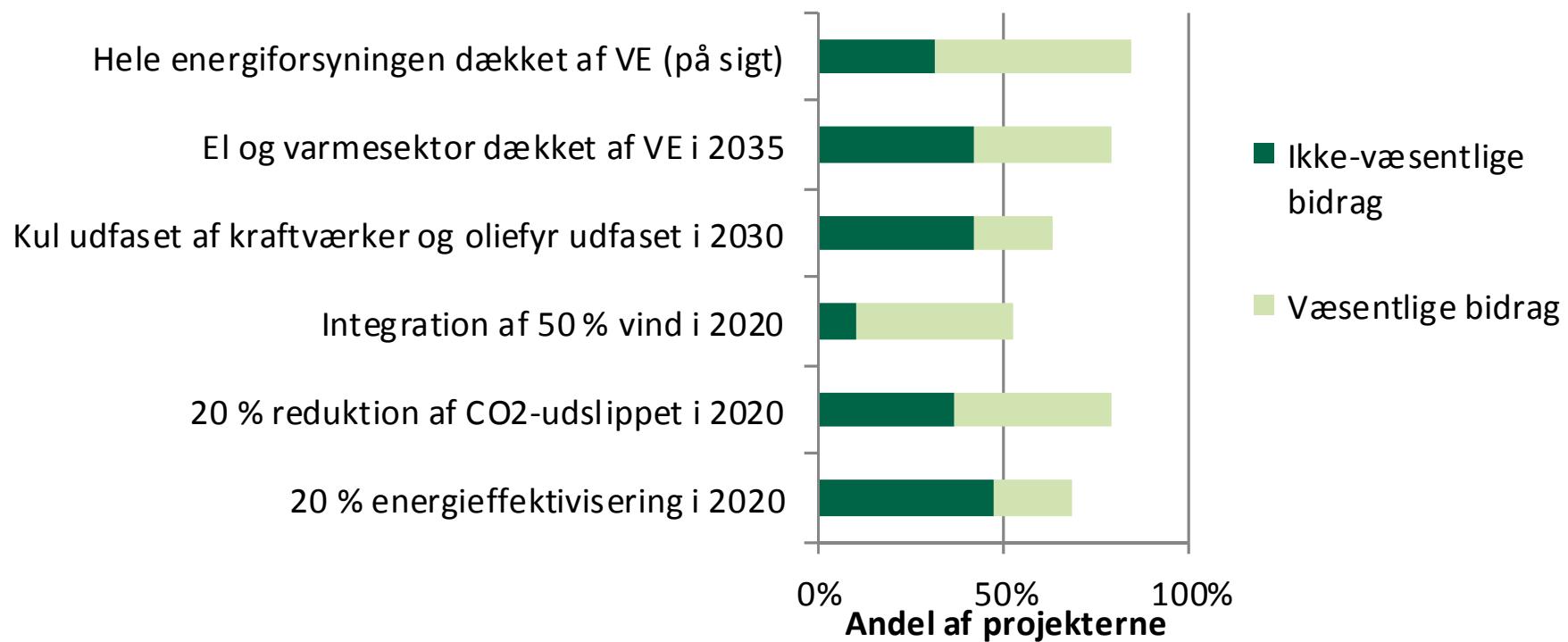
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Contribution to energy and climate targets

Projekternes bidrag til energi- og klimamål



Future?

- EA on a satisfactory level → focus on the ForskEL process
- Ex post → ex ante
- Application vs EA

Application template

A.3 Technology description

Guide:

A.3.1: Describe the technologies explored in the project and argue for the plausibility and novelty value of the technology.

A.3.2: Describe the significant environmental challenges of the technologies. Consider negative impacts and improvement potentials as well as uncertainties related to the environmental challenges. State measurable milestones for environmental improvements of the technologies during the project period.

For a guiding list of potential environmental challenges please see the document “Environmental screening” at www.energinet.dk.

(Please delete this guide, before submitting the application to Energinet.dk)

A.3.1 Technology description

A.3.2 Environmental challenges and milestones for environmental improvements

Application - environmental screening

Environmental challenge in the project	Not significant	Significant (important)	Will be investigated	Will be a project focus (Milestone)
Use of construction materials (steel, concrete, etc.)				
Use of rare metals and components				
Use of environmentally hazardous substances				
Generation of residual products and other waste				
Possibility for reusing or recycling components				
Decommission and special treatment of waste				
Emissions to air during manufacturing, transport and operation				

Application template

A.4 Relevance

Original:

"A.4.5: Describe in what way the project result(s) will benefit the environment."

Replaced by:

"A.4.5: Describe in what ways the project result(s) will support the efforts of achieving political climate and environmental targets".

Questions or suggestions?

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Contact Inger Pihl Byriel