



FFI Norwegian Defence
Research Establishment

Challenge:

Energy supply in field operations

sopra  steria
Scale up

 LUP

 dfø



We will go through

1. Project goal and scope
2. The process
3. How to write a good idea sketch
4. Specific aspects of this challenge
5. Potential questions



We connect contracting authorities with startups to solve challenges in the public sector

Project goal and scope







Ambition: A solution that reduces the Norwegian Defense's need to handle many different power supply solutions.

Project goals

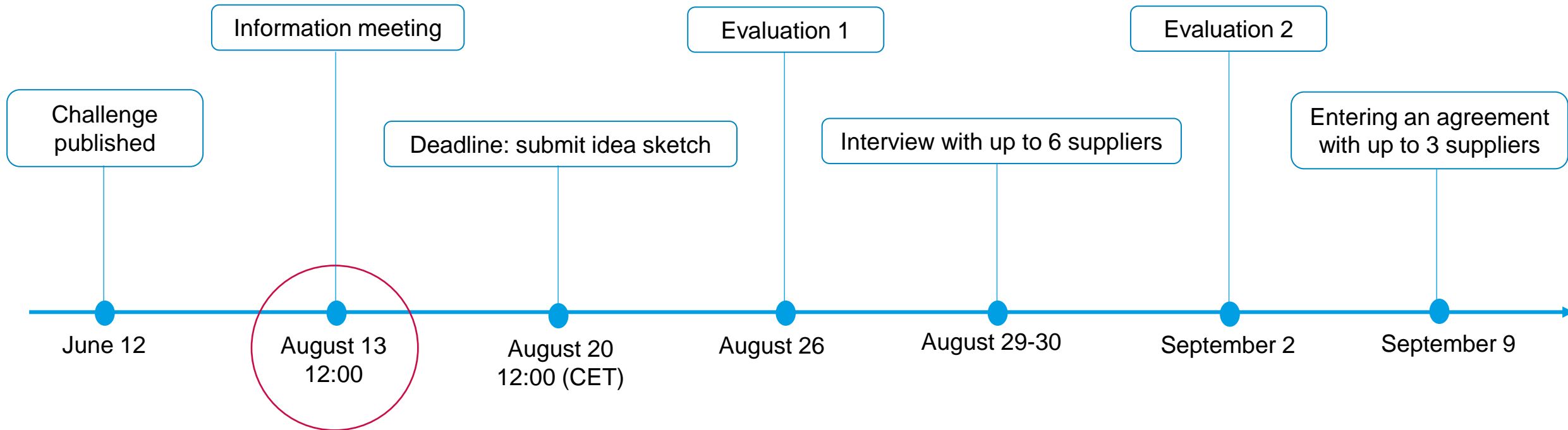
- Map out different approaches to solve the need, and develop a minimum product/testable version of the most promising concept



Steps and deliveries in the process

| PHASE | 1 Define challenge | 2 Send in idea sketch | 3 Explore alternatives | 4 Develop the solution | 5 Demonstrate solution | 6 Next steps |
|-------------------------|---|---|--|---|---|---|
| |  |  |  |  |  |  |
| DURATION | 3 weeks | 4 + 1 weeks | 3 + 1 weeks | 15 weeks | 2 weeks | x weeks |
| DELIVERIES / ACTIVITIES | Contracting authority's need description Challenge video | Idea sketches from suppliers Evaluation of idea sketches Interview Evaluation: from 6 til 3 | 3 suppliers further develops their idea sketch to a solution proposal Remuneration: NOK 75 000,- Evaluation: from 3 til 1 | Development of prototype/MVP Remuneration: NOK 500 000,- Agile development process in collaboration with the contracting authority | Demo of the solution – the winning supplier presents their solution to potential buyers | Meeting with contracting authority «How to proceed with the result?» |

Current phase: Send in idea sketch



How to write a good idea sketch?

CHALLENGE RULES

PARTICIPATION IN THE STARTOFF COMPETITION

'Energy supply in field operations'

Template for idea sketch in the StartOff project «Energy supply in field operations»

This idea sketch template has five questions to be filled out. You can submit your completed version to us either as a Word document or PDF.

Please read the guidance text (which is in italics) carefully before filling it out, and kindly adhere to the maximum word count allowed for the sketch. Delete the guidance text before submitting the sketch.

Please name the file "Idea_Sketch_SupplierName_for_FFI". If you are submitting multiple sketches, please indicate so and use different file names for the idea sketches.

For suppliers in a consortium a collective/ combined idea sketch is to be completed. For more information, please refer to the challenge rules.

1. About the company

| | |
|----------------------|--|
| Company name: | <i>Enter the name of the company you are submitting an idea sketch on behalf of – this name will be used throughout the application process.</i> |
|----------------------|--|

6 Evaluation criteria

Evaluation of idea sketches

Idea sketches will be evaluated against the evaluation criteria (see table below)

Table 1 Evaluation criteria

| Criteria | Weighted | Documentation requirements |
|---|----------|---|
| | | <u>You should use the idea sketch template to describe your solution idea</u> |
| Quality – the solution's effect and degree of innovation Under this criterion, the following are considered: 1. To what extent the proposed solution idea demonstrates | 60% | Describe the proposed solution as well as how and to what extent the solution or idea will meet the described needs as outlined in the requirements specification (see section 3 of this document). |

10

| Criteria | Weighted | Documentation requirements |
|---|--|---|
| | | <u>You should use the idea sketch template to describe your solution idea</u> |
| that it can function as a unit that helps the Armed Forces achieve: <ul style="list-style-type: none"> A flexible energy system in the field that connects various components An efficient energy system with low energy loss and long operational lifetime A streamlined setup that reduces the number of components in use and management A remote-controlled system that contributes to control, operational optimisation, and increased performance | Describe the degree of innovation in the solution. The degree of innovation should be described in a way that highlights the difference between the current situation and the proposed solution, emphasising what is the innovative parts of the solution. For reference, the following definition of innovation can be used: the introduction of a new or significantly improved product, service, or process, including production, construction, or installation processes, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations. | |

Evaluation criteria

Quality (60%)

How the idea sketch matches the need (needs matrix)
+
How innovative is the suggested solution



Needs Description

Introduction

The Armed Forces have a complex and increasing need for energy in field operations, with many different devices having their own power supply solutions. The Norwegian Defence Research Establishment (FFI) would like to encourage the market to propose and demonstrate a minimum viable product (MVP) that reduces the need to manage many different power supply solutions. In addition to functionality, important aspects are security, robustness, and environmental requirements. FFI and the Armed Forces emphasise these in all their procurements.

The initiator of this competition is ICE worx, which is FFI's centre for innovation, concepts, and experimentation. ICE worx' task is to contribute to effective development work in and for the Armed Forces.

Which problem do we wish to solve?

Various systems and equipment in the Armed Forces typically use their own power supply solutions. These may involve different batteries, chargers, cables, plugs, and power adapters. This is a challenge because the Armed Forces has to bring a great deal of different accessories to supply their field equipment with power. This means that the equipment takes up more space and weight. Moreover, it wears out and needs to be managed etc.

Another challenge stems from the Armed Forces' need to use several different systems and equipment. These often communicate poorly with each other. Thus, it may not be possible to achieve a complete overview of total energy data, such as energy consumption and available capacity. Furthermore, the various equipment can be hard to control remotely, and the different equipment can be difficult to monitor efficiently in a single system.

A third challenge is related to the environment and sustainability, specifically that without flexible coordination, there is a certain risk of operating systems less efficiently. Bringing more equipment is also environmentally disadvantageous in terms of logistics, as the physical footprint is larger.

| No. | Category | Description of need | Performance/function |
|-----|-----------------------------|--|---|
| N01 | Connection/Inputs | The solution should be able to connect to various energy systems, power producers, voltages, and interfaces. | <ul style="list-style-type: none"> • Touchproof and flexible solutions for connection to DC and AC • Adjustable DC inputs with voltage levels from 5 to 50 V, or higher as long as the unit remains touchproof |
| N02 | Supply/Outputs | The solution should be able to supply a range of equipment with different voltages and outputs. | <ul style="list-style-type: none"> • Touchproof DC outputs • Voltage from 3 to 50 V, or higher as long as the unit remains touchproof • At least 5 outputs |
| N03 | Battery Charging | The solution should be able to charge batteries. | <ul style="list-style-type: none"> • The unit should be able to charge military batteries such as BB2590/U and others. • The unit should preferably be able to charge Li-Ion, lead-acid, NiMh batteries, etc. • Charging function should not significantly impair other features. |
| N04 | Data Exchange | The solution should have an interface that allows remote control of functionality and access to status and condition information from a distance. | The solution should have a data interface for remote control of functions and monitoring of relevant status and energy data. The unit is meant to be connected to a system for sending and receiving data. |
| N05 | Signature | Low thermal signature, low acoustic noise, weak electromagnetic and electrical fields, etc. | The lowest possible signature is positively emphasised. |
| N06 | Sustainability | The solution should be ecologically sustainable in terms of material use, reuse, and climate emissions. | The final solution must meet the climate and environmental requirements of public procurement. |
| N07 | Efficiency | The equipment should have low energy loss and high efficiency. | The equipment should have low energy loss in order to optimise operational lifetime and energy consumption. |
| N08 | Climate and external impact | Suitable for military use in the field, in different climate zones, especially in Arctic regions. | <ul style="list-style-type: none"> • The final solution should withstand strong mechanical, climatic, and atmospheric loads and stress. • The final solution should be easily operable in the field and under various weather and light conditions, especially in the Arctic, as well as in tropical zones and deserts. |
| N09 | Safety and security | The unit must be designed to ensure: <ul style="list-style-type: none"> • personnel safety during intended use • data and information security | <ul style="list-style-type: none"> • Safety covers, for example, touch proof, safe design (enclosure rating, no sharp edges, etc.), no harmful electrical fields, etc. • The final solution must comply with the Norwegian Defence' demands for information security |

Capability to execute (20%)

Commercial potential (20%)

| Criteria | Weighted | Documentation requirements |
|---|----------|---|
| Capability to execute/team This criterion assesses the team's ability to materialise and execute the idea. The following areas are emphasised in the evaluation: <ul style="list-style-type: none">• Expertise/experience• Team composition/interdisciplinarity• Motivation | 20% | Briefly describe resumes for each of the key resources of the team, and describe the skill set and experience profiles of resources who will be part of the team. |
| Commercial potential for the solution idea | 20% | Describe your assessments regarding the commercial potential of the proposed solution. Can the proposed solution be used by a larger market than FFI? |



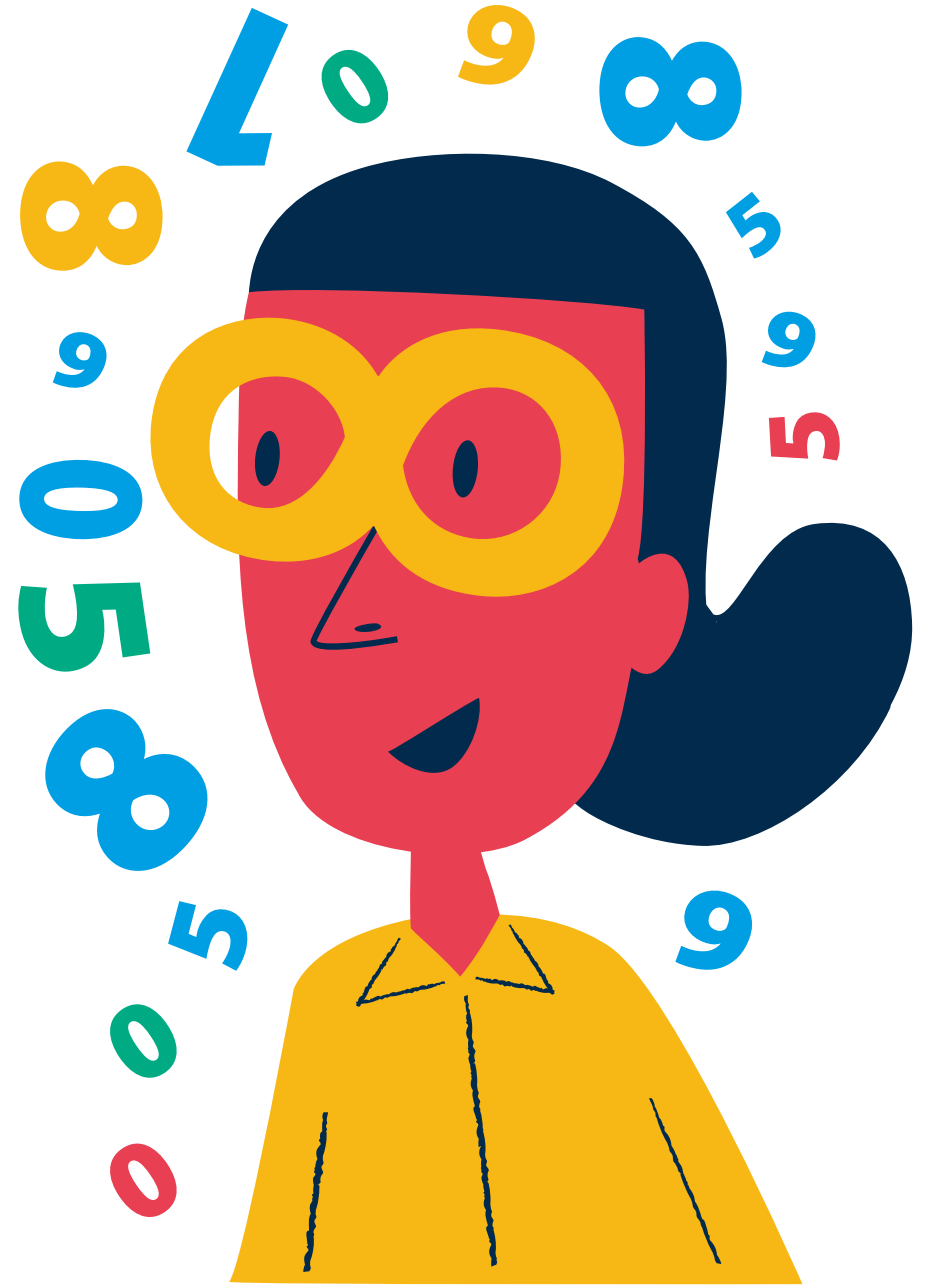
How to write a good idea sketch?

It is not a requirement to score 100% on all criteria – the evaluation will be based on an overall assessment




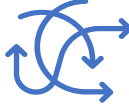


Use the template for idea sketch (attachment 2)

Document and show the probability of your claims in the idea sketch as much as you can

Avoid being too technical – remember that the reader should understand the content



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SPECIFIC ASPECTS OF THIS CHALLENGE

- Idea sketch and a copy of public business registration to malin.karlsson@dfo.no
- Attachment 4, 5 and 6
- English vs. Norwegian contract
- Appendix 8: Changes to the Agreement Before Contracting





Questions?