

VOORAANKONDIGING

Leveringen

Richtlijn 2014/24/EU

Deze aankondiging dient enkel als vooraankondiging

AFDELING I: AANBESTEDENDE DIENST

I.1) NAAM EN ADRESSEN

Officiële benaming:

Technische Universiteit Delft

Nationale identificatie:

27364265 0001

Postadres:

Stevinweg 1

Plaats:

Delft

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Hoofdadres:

<http://www.tudelft.nl>

Adres van het kopersprofiel:

<https://platform.negometrix.com/PublishedTenders.aspx?tenderid=178455>

I.2) GEZAMENLIJKE AANBESTEDING

-

I.3) COMMUNICATIE

Nadere inlichtingen zijn te verkrijgen op

het hierboven vermelde adres

I.4) SOORT AANBESTEDENDE DIENST

Publiekrechtelijke instelling

I.5) HOOFDACTIVITEIT

- Onderwijs

AFDELING II: VOORWERP

II.1) OMVANG VAN DE AANBESTEDING

II.1.1) Benaming

Market consultation wind farm model

Referentienummer: 2021 - 10062

II.1.2) CPV-code(s)

Hoofdcategorie:

38000000 - Laboratoriuminstrumenten, optische en precisie-instrumenten (uitgezonderd brillen)

Subcategorie:

-

II.1.3) Type opdracht

Leveringen

II.1.4) Korte beschrijving

The goal of this market consultation is to determine which suppliers are able to offer a device that can create reproducible time-varying wind conditions in a confined space within the requested functionalities for TU Delft.

II.1.5) Geraamde totale waarde

Waarde zonder btw: - Munt: -

II.1.6) Inlichtingen over percelen

Verdeling in percelen: neen

II.2) BESCHRIJVING

II.2.1) Benaming

-

Perceel nr.: -

II.2.2) Aanvullende CPV-code(s)

Hoofdcategorie:

38100000 - Instrumenten voor navigatie en meteorologie

Subcategorie:

-

Hoofdcategorie:

38120000 - Instrumenten voor de meteorologie

Subcategorie:

-

Hoofdcategorie:

38000000 - Laboratoriuminstrumenten, optische en precisie-instrumenten (uitgezonderd brillen)

Subcategorie:

-

Hoofdcategorie:

38121000 - Windmeters

Subcategorie:

-

Hoofdcategorie:

39717000 - Ventilatoren en klimaatregelingsapparaten

Subcategorie:

-

Hoofdcategorie:

39714100 - Ventilatoren

Subcategorie:

-

Hoofdcategorie:

39717200 - Klimaatregelingsapparaten

Subcategorie:

-

Hoofdcategorie:

42522000 - Ventilatoren voor niet-huishoudelijk gebruik

Subcategorie:

-

Hoofdcategorie:

31121320 - Windturbines

Subcategorie:

-

II.2.3) Plaats van uitvoering

NUTS-code:

NL NEDERLAND

Voornaamste plaats van uitvoering:

-

II.2.4) Beschrijving van de aanbesteding:

(aard en omvang van de werken, leveringen of diensten, of vermelding van de behoeften en vereisten)

Wind energy is expected to be the largest European source of energy by 2030 and therefore largely responsible for enabling Europe to achieve its goal of having at least 27% of its electrical energy generated by renewable sources. While in Borssele one of the cheapest wind farms in the world was erected, the costs of offshore wind energy should decrease even further to make it competitive with its fossil alternatives.

Placing a wind turbine offshore has a positive effect on the Cost of Energy (CoE), since at sea the average wind speed is higher and the turbulence level is lower than above land. Because available offshore parcels are of limited size and number, wind turbines are placed in wind farms to increase the energy density for a given parcel and to reduce the necessary infrastructure. The current topology of wind farms is optimised with respect to the annual distribution of wind directions and speeds at the site. As a rule of thumb, wind turbines are spaced a distance equal to 7-10 times the turbine's rotor diameter apart to reduce the interactions between them and minimize the CoE.

The interactions are, even at this coarse spacing, significant: each wind turbine produces a wake downstream, which depends on the orientation of the turbine and/or its rotational speed. A wind turbine in the wake of another turbine experiences a wind field with a lower average wind speed and a higher turbulence intensity. In 1980 it was already envisaged that wind turbines in a wind farm would have a power loss of 25% compared to turbines without interaction.

Previously, it was shown that yaw control, which is an already existing control degree of freedom, can help minimize the interaction between different turbines for existing wind farms under quasi-steady conditions. However, for realistic inflow conditions a challenging time-varying control problem has to be solved. For this emerging field a dynamic control solution is still lacking. At the TUD we now take a crucial next step in minimizing wake effects for realistic time-varying atmospheric conditions to prevent power loss and increased structural loading in wind farms, by introducing robust closed-loop wind-farm control. In this framework real-time data will continuously be used to update a dynamic wind-farm model that will be used, in combination with an uncertainty description, to make robust decisions about the yaw settings of the individual turbines, by which the turbine's wake can be steered away from downwind turbines, minimizing its impact on neighbouring wind turbines for realistic conditions.

To validate the robust closed-loop control framework, high fidelity numerical simulations and dedicated wind tunnel experiments will be performed. For the latter, a dedicated scaled experimental wind-farm model is available (size 60cm each). A critical element of this experimental facility will be the ability to create reproducible time-varying wind conditions. Since the availability of large wind tunnels is scarce and expensive and not able to generate time-varying wind conditions we seek a solution to simulate reproducible time-varying conditions to test the robust closed-loop control framework.

II.2.14) Nadere inlichtingen:

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**II.3) VERMOEDELIJKE DATUM VAN DE BEKENDMAKING VAN DE
AANKONDIGING VAN EEN OPDRACHT**

02/08/2021

AFDELING IV: PROCEDURE

IV.1) BESCHRIJVING

IV.1.8) Inlichtingen over de Overeenkomst inzake overheidsopdrachten (GPA)

De opdracht valt onder de GPA: ja

AFDELING VI: AANVULLENDE INLICHTINGEN

VI.3) NADERE INLICHTINGEN

If there is only one (1) supplier who can fulfil the contracting authority's requirements the contracting authority will start a negotiation procedure without prior notice.

VI.5) DATUM VAN VERZENDING VAN DEZE AANKONDIGING

27/05/2021