

## Vak: Modelling Business Ecosystems of Energy Flexibility Services

credits: 10

|                     |  |                   |   |
|---------------------|--|-------------------|---|
| <b>Vakcode</b>      | SUVM23MBEEFS   | <b>Werkvormen</b> | Werkvorm 1  |
| <b>Naam</b>         | Modelling Business Ecosystems of Energy Flexibility Services | <b>Toetsen</b>    | fundamenteel modellering - Schriftelijk, organisatie ToetsCentrum |
| <b>Studiejaar</b>   | 2023-2024  |                   | Modelling Ecosystems - Opdracht                                   |
| <b>ECTS credits</b> | 10   |                   |   |
| <b>Taal</b>         | Engels   |                   |   |
| <b>Coördinator</b>  | F. Pierie  |                   |   |

### Leeruitkomsten

#### Objective of the module:

The student has achieved the following learning outcomes:

#### To be able to

1. Model energy ecosystems
2. Assess the impact of the information services on the viability of the eco system
3. Design workflows delivering such services

#### To have demonstrated knowledge and understanding of

4. Energy-related services required for viable decentralised energy ecosystems
5. Information services required to deploy the energy-related services
6. Business processes required to deliver these services

### Inhoud

In this module the student will acquire knowledge concerning which new information services, based on potential flexibility assets, are needed to create a decentralized energy system. In addition he/she will also learn how these services can be developed and applied into a viable business eco-system. The module is aimed at understanding the role of new information and flexibility services in decentralized energy systems.

The module starts with business modeling basics and the introduction of a tool for business modeling (evalue). Next, the role of energy-related services, information services and business services in sustainable energy will be highlighted. With the introduction of decentral renewable resources advanced flexibility services will be needed to control and manage non-controllable generation, decentral demand-supply coordination, as well as the incorporation of advanced conversion and storage technologies. Energy-related services are crucial in this, but they cannot be deployed without adequate information support. Cases will be modelled, where flexibility (e.g. storage, conversion) is needed, and where such flexibility requires information services. In order to deliver more advanced services, several stakeholders have to be lined up in a business value network, and various business processes need to be developed. Accordingly, students will be introduced to business process management and business process modelling, as well as to the role of transactional systems and object models in support of business processes.

All components of the module will come together in a real-life case study that needs to be modelled and worked out into a viable energy eco-system.

### Opgenomen in opleiding(en)

European Master in Sustainable Energy System Management

### School(s)

Instituut voor Engineering

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