



## SERVICE LOGISTICS FOR OFFSHORE WIND FARMS

**When:** Tuesday, April 23<sup>rd</sup>, 11am-12pm

**Where:** Main 228

**Abstract:** It is crucial for offshore wind farms to improve the efficiency of its maintenance service logistics in order to become competitive with traditional energy suppliers or other green alternatives such as solar and onshore wind. In this context, we study a short-term maintenance planning and routing problem, which can be characterized as a multi-commodity multi-period resource constrained pickup-and-delivery problem. Namely, different types of relatively scarce technicians need to be transported between offshore locations in order to perform maintenance activities. The main difficulty of this planning and routing problem is how to coordinate the use of the scarcely available technicians, which are paid a fixed risk premium for each day they work offshore, and the use of service vessels that deliver and pickup technicians between offshore locations. Besides a general introduction of the problem, two specific variants with accompanying solution approaches will be discussed in this seminar. First, we discuss a branch-and-price-and-cut algorithm for solving the single wind farm case. We provide insights in alternative modeling (and pricing) strategies, with as main ingredients a specialized variant of cover inequalities and the use of column dependent constraints. Second, we enlarge our view by considering multiple wind farms being served from multiple ports. We develop an Adaptive Large Neighborhood search and using that, we show the potential of sharing technicians between the different wind farms.



**Speaker:** Albert Schrottenboer

Albert Schrottenboer is a fourth-year Ph.D. candidate in the Department of Operations, University of Groningen, The Netherlands. His main expertise lies in the development of exact and heuristic methods for solving mixed integer programming models in the area of distributed logistics.