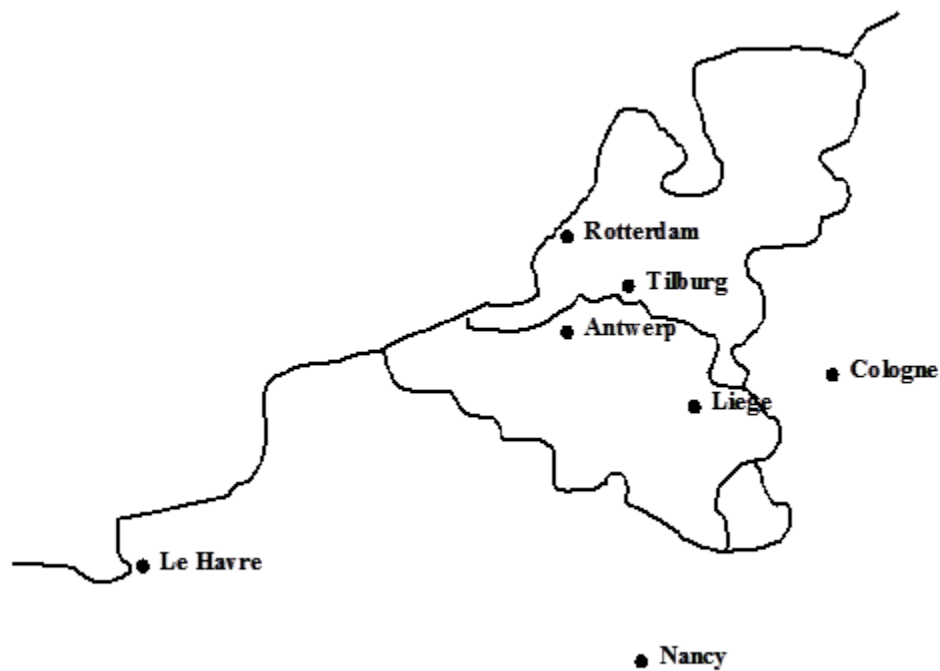


## Autopower Shipping

The Autopower company makes a variety of battery and motorized uninterruptible electric power supplies (UPSs) to provide backup electrical power to hospitals and internet service providers, which cannot tolerate an interruption in their electrical power system. Autopower has four final assembly plants for their large diesel motor-generator UPSs in Europe. They are located in Cologne (Germany), Nancy (France), Liege (Belgium) and Tilburg (The Netherlands). Please see the map below for the locations.



As part of Autopower's supply chain, the diesel motors used by these UPSs are produced in the United States, shipped to harbours in Antwerp, Rotterdam and Le Havre, and then sent to the assembly plants. Production plans for the second quarter, April through June, have been set. The requirements, i.e. the demand at the destinations for motors, are shown in Table 2.1.

**Table 2.1. Number of motors required at each of the locations**

Assembly plant	Number of motors required
Cologne	400
Liege	200
Nancy	900
Tilburg	500
<b>Total</b>	<b>2,000</b>

The available number of motors at the harbours in time to be used for the second quarter supply is shown in Table 2.2.

**Table 2.2. Number of motors available at each of the harbours**

Harbour	Number of motors available
Antwerp	600
Le Havre	800
Rotterdam	600
<b>Total</b>	<b>2,000</b>

Autopower wants to decide how many motors to send from each harbour to each plant. The motors are transported by common carrier trucks, and charges are on a per motor basis. The transportation costs are given in Table 2.3.

**Table 2.3. Unit transportation costs**

	Cologne	Liege	Nancy	Tilburg
Antwerp	€ 100	€ 60	€ 90	€ 40
Le Havre	€ 165	€ 100	€ 80	€ 110
Rotterdam	€ 120	€ 75	€ 130	€ 40

Autopower's goal is to minimize the total cost of transporting the motors from the harbours to the assembly plants.