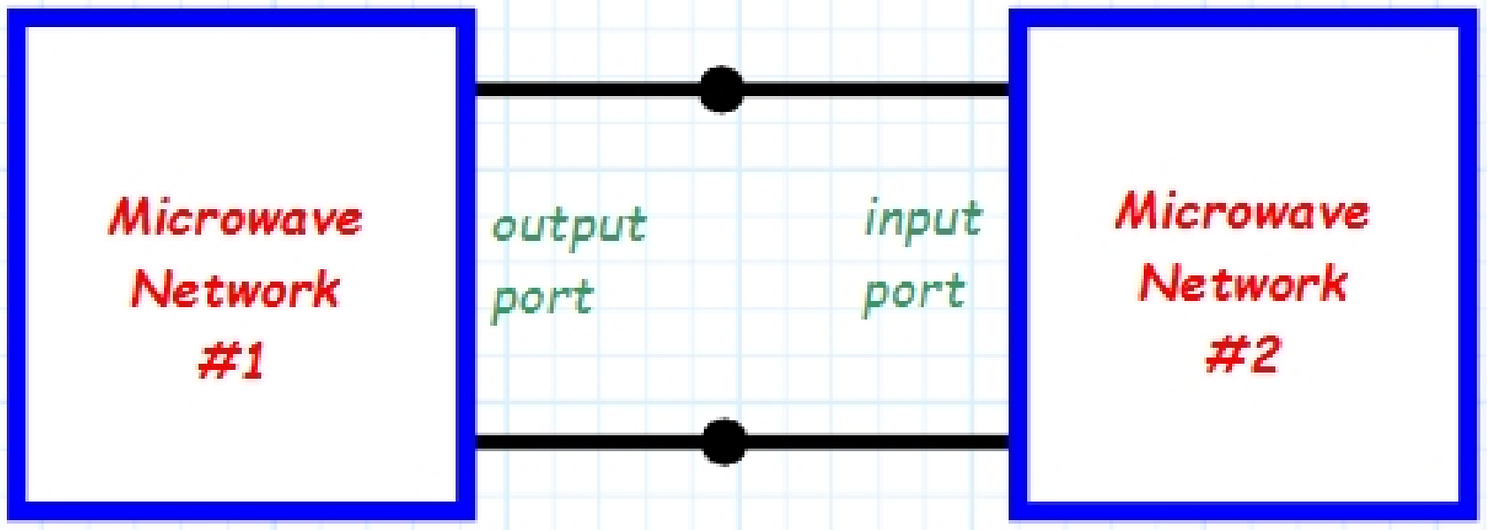
Connecting a Source and Load

Say we wish to connect the **output** of one microwave network/component to the **input** of another microwave network/component.

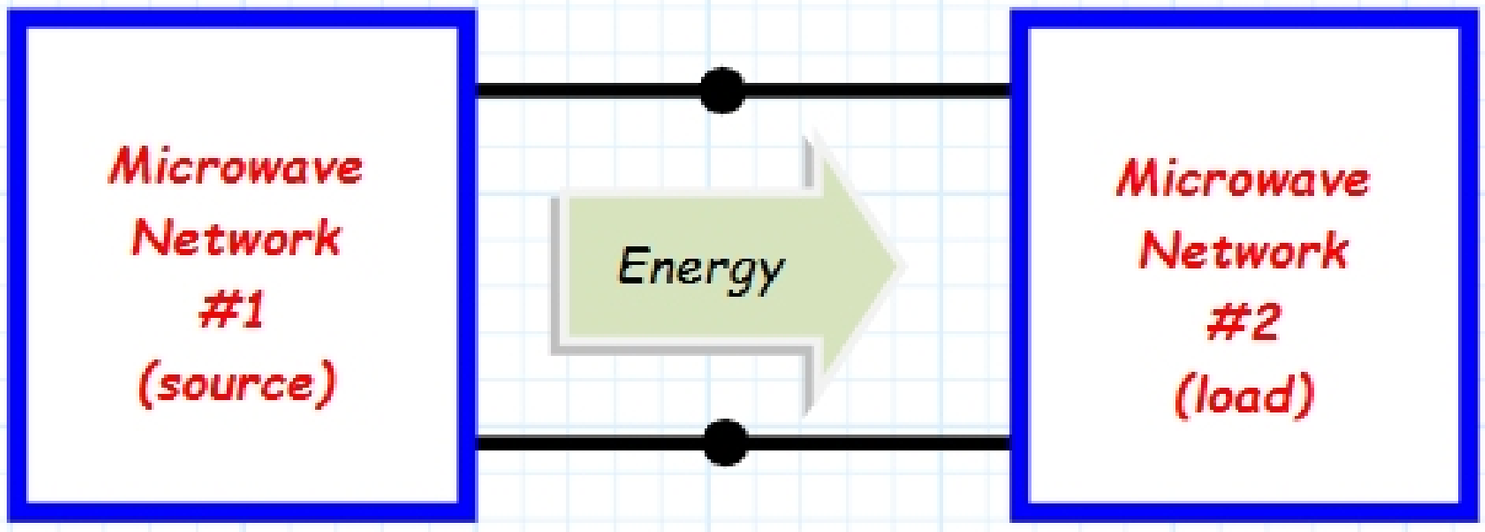


The terms "input" and "output" tells us that we wish for signal **energy** to flow **from** the output network **to** the input network.

Source delivers; load absorbs

We can say that the **output delivers** signal power to the input, or equivalently, that the **input absorbs** power from the output.

In this case, the first network is the **source**, and the second network is the **load**.



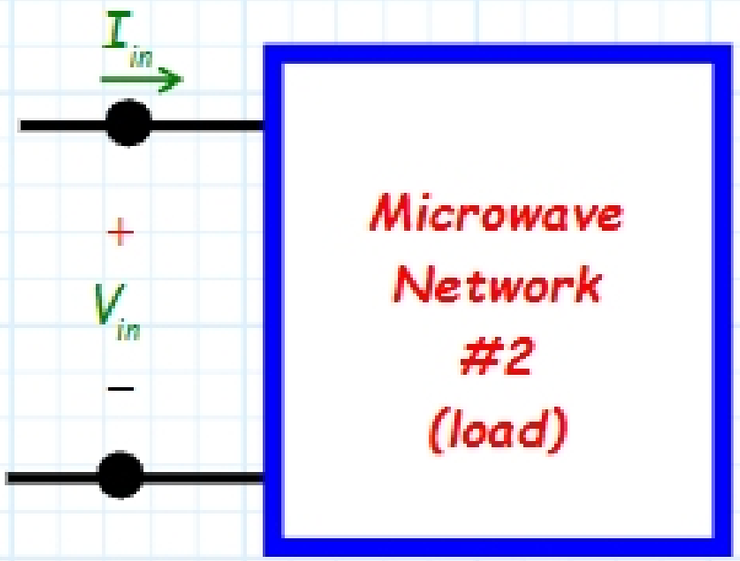
The **source delivers** power to the load, or equivalently, the **load absorbs** power from the source.

Each of these two networks may be quite complex, but we can always simply this problem by using **equivalent circuits**.

Input impedance: The equivalent load

For example, if we assume time-harmonic signals (i.e., eigen functions!), the load can be modeled as a simple lumped **impedance**, with a **complex** value equal to the **input impedance** of the network.

$$Z_{in} = \frac{V_{in}}{I_{in}}$$



$$V_{in} = Z_{in} I_{in}$$