ELEMENTARY BASELOAD BALANCE

For those without a pan balance

You can construct a balancing mechanism to use with the *Elementary Baseload Balance* activity if you do not have a pan balance. Follow the rest of the original activity, substituting your meter/yard stick balance.

Suggested Materials

- meter or yard stick, or a ruler
- 3 rubber bands
- 2 binder clips
- 1 large paper clip
- 1" square graph paper

✔ Set-up Procedure

1. Open the paper clip so it forms an "S" shape.
2. Center a rubber band on a meter/yard stick, and loop the opened paper clip through the rubber band. Make sure the rubber band is tight around the stick so it stays where you put it. Hang the yard stick so it can move freely, such as from a ring stand as shown, or from the ceiling, or even a string on a board between a stack of books.
3. Shift the rubber band until the meter/yard stick hangs level.
4. Squeeze and remove one "arm" from each of two binder clips, and loop a rubber band through the arm. Squeeze and replace the arm on the clips so the binder clip functions as before and the rubber band is through the arm.
5. Loop the rubber band from each binder clip tightly around the ends of the meter/yard stick and move them up and down until the stick is balanced again.
6. Make enough copies of the graph paper so you can cut all the pieces you will need. 1 square = 5 MW (use the Cheat Sheet with the original activity to determine how many squares each piece needs to be, using the grams column). You will need the following:
    - Base demand – 115 MW
    - Base generation – 115 MW
    - Morning peak demand – 20 MW
    - All day peak demand – 15 MW
    - Evening peak demand – 15 MW
    - Natural Gas Peak Generation – 10 MW (2 of these)
    - Natural Gas Peak Generation – 5 MW
    - Wind Generation – 10 MW
    - Solar Generation – 10 MW
    - Hydropower Peak Generation – 5 MW
    - Hydropower Peak Generation – 10 MW

7. Make sure the pieces are cut carefully so they are scaled appropriately according to their weight.
8. Instead of laying the "Demand" and "Generation" placards on the table in front of your balance, you can tape them to the meter or yard stick, making sure the stick remains balanced and level.
9. In the original activity, when students would place weights or building blocks in the pan of the balance, you will instead direct them to clip their gridded slips of paper into the binder clip on the appropriate end, taking care to not lose any slips of paper already in the clip. Very young students may need your help with this.