

Winspear, K. 1976. Industrial waste heat used by French project. *The Grower*. 85(2):79-81.

The French have set up a $\frac{3}{4}$ acre, multi-span, plastic structure heated by water produced from a power plant cooling system. The heated water is pumped to the plastic house at a rate of 44,000 gallons an hour at 68 F. It is circulated through lay-flat polyethylene tubes laid on the ground and sloped to allow water to flow by gravity.

The system incorporates a condenser and evaporator to raise the temperature of the water to 86 F, and after passing through the lay-flat pipes, is used to fill a 14,000 gallon reservoir, from which irrigation water is also drawn.

The greenhouse is Dutch with 10½ ft. bays, divided into three compartments. Cucumbers were being grown with the lay-flat tubing covering practically all of the floor. For each bay there are 3, 40cm wide tubes with water in them to a depth of 5 cm.

Obviously a lot of heat not being used, but French claim economics are viable. And further, 13 nuclear stations are to be built in the next ten years, and it is hoped to include a greenhouse complex, fish farm and outdoor horticultural production with each new plant. Studies are being conducted with underground pipes for soil warming.

Lay-flat tubes appear efficient, and at Grenoble, an experimental greenhouse was heated to a minimum 48 F when outside temperature was 12 F, with a water temperature of 91 F.