EXAMPLE 1-13 Heating of a Plate by Solar Energy

Modelica code

```
model Example_1_13 "Heating of a Plate by Solar Energy"
  import Modelica.SIunits;
  import Modelica.SIunits.Conversions.NonSIunits;

  parameter SIunits.HeatFlux                  Irr(min=0) =           700  "Solar";
  parameter Real                              alpha(min=0,max=1) =   0.6  "Abs.  (-)";
  parameter SIunits.CoefficientOfHeatTransfer h(min=0) =             50   "(W/(m^2 K))";
  parameter NonSIunits.Temperature_degC       T_surr(min=-273.15) =  25   "Surr. T (C)";

  output SIunits.EnergyFlowRate      E_gain "Energy gained (J/m^2)";
  output SIunits.EnergyFlowRate      E_lost "Energy lost (J/m^2)";
  output NonSIunits.Temperature_degC T_s    "Plate surface temperature (C)";

equation
  E_gain = alpha*Irr;
  E_lost = h*(T_s-T_surr);
  E_gain = E_lost;

end Example_1_13;
```