

# Gurteen College 2009

Electricity cost €60 000

Heating cost from Peat €60 000

Projected cost from Oil €100 000

College expanding and costs rising

# Electricity Solutions

- Use Less where Possible!
- Lighting changed for energy efficient
- Bulbs removed
- Installed 50kw Wind Turbine
- Produces 80 000kw annually
- All used – Nothing to Grid
- Cost - €200 000 less grant of €60 000
- Payback 10 years

# Heat Solutions

- Insulate, Insulate, Insulate!!!
- Energy Efficient Boilers
- Control Heat Everywhere
- Find fuel at a sustainable price long term

# Gurteen Heat Solutions

- ❑ Install two 300kw KWB biomass boilers to supply heat
- ❑ Install computer control system for each of 30 heat circuits and 5 hot water systems
- ❑ Plant 32 ha (80 acres) of willow biomass to supply total energy need
- ❑ Insulate where economically possible

# Money!!!

- Total project cost was €500 000 with grants of half this. Net cost €250 000
- Heating cost now €20 000 per annum, a saving of €80 000 over oil.
- Payback period? 3 to 5 years
- Boiler alone cost €200 000 and bought chip would cost €40 000pa, saving €60 000

# Willow Biomass economics

- Planting cost of €1000 per acre with grant of €500. Net cost €500 per acre
- Annual production of 8 tonnes wet chip per acre per year at a value of €40 per tonne at 55% moisture. Harvest every 3 years
- Harvest cost €160 per acre
- Return per 3 years is  $8 \times 3 \times 40 = 960 - 160 = 800$
- Return per year  $800/3 = \text{€}267/\text{acre} = \text{€}660/\text{ha}$