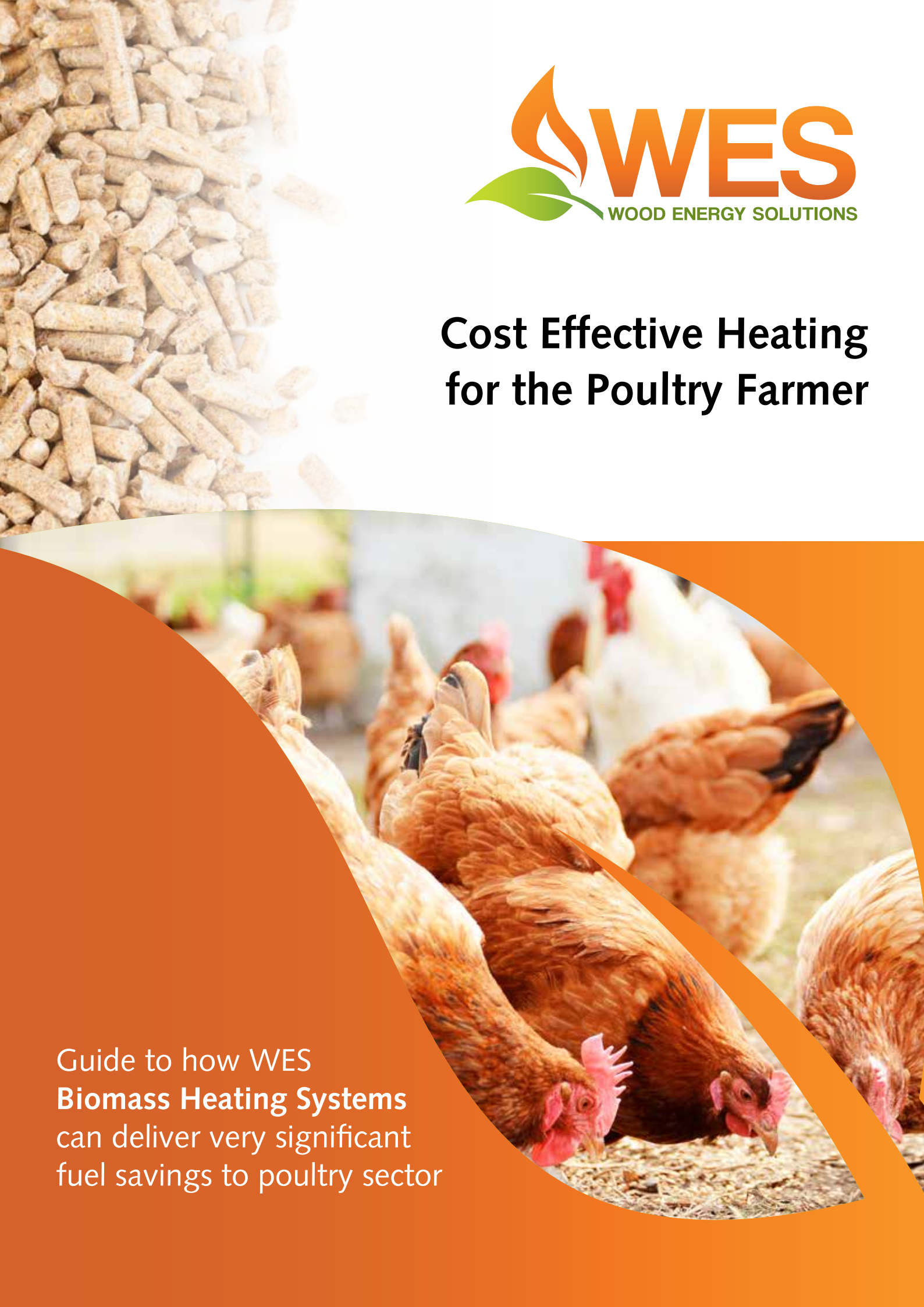




Cost Effective Heating for the Poultry Farmer

Guide to how WES
Biomass Heating Systems
can deliver very significant
fuel savings to poultry sector



Introduction

Wood Energy Solutions (WES) is the largest dedicated Biomass Boiler manufacturer in Ireland and the U.K. and offers its customers a one stop shop for wood pellet heating. Located in County Tipperary, we are one of the original pioneers of biomass heating systems design and produce a wide range of cost efficient wood pellet boilers for both commercial and domestic applications.



WES designs and manufactures its award winning biomass heating systems at its 35,000 sq ft factory and exports to Canada, USA, UK and France. The company has a strong emphasis on producing efficient, reliable heating systems for its customers. We specialise in wood pellet burning systems from 18kW right up to 200kW.



Why biomass for the Poultry farmer?

The benefits of biomass generated heat to the poultry grower is very significant and worthwhile

- Savings of up to 30% can be achieved compared to Oil, LPG or electricity (compared to prices in Jan 2015)
- Unlike LPG heating systems biomass heating produces no harmful ammonia or CO2 emissions to the sheds. Less ventilation required.
- The litter stays dry which improves bird welfare and the dry heat is a better environment for birds
- Food Conversion Ratios (FCR) are found to be greater in many cases
- The fuel is produced in Ireland and is carbon neutral. The grower can proudly claim to be producing birds in a sustainable, environmental friendly manner which is important to many consumers nowadays.



	Wood Pellets	LPG
Cost-effective & Predictable	✓	✗
Savings up to 30%!	✓	✗
Zero moisture content, resulting in:	✓	✗
- drier litter	✓	✗
- improved bird health	✓	✗
- reduced ammonia and odours	✓	✗
Zero carbon emissions	✓	✗
Renewable resource	✓	✗

Potential Benefits of Ammonia Reduction	
↓ 10ppm Ammonia	= ↓ 0.045kg Body Weight
↓ 10ppm Ammonia	= ↓ 1% Mortality Rate
↓ 10ppm Ammonia	= ↓ 1/16% Meat Yield
↓ 10ppm Ammonia	= ↓ 1 point FCR
↓ 10% Litter Moisture	= ↓ 6% Paw Burns



The Technology

For the Poultry sector WES has developed the EcoCabin, a pre-packaged plant room that is 'plug and play'.

The EcoCabin is delivered to site and the shed can have heating within days after it has been dropped on site.

WES' boilers all comply with RHI Emissions criteria and are recognised as one of the most robust and efficient boilers on the market. WES boilers use 6mm pellets (conforming to ENPlusA1 standard).

EcoCabin

The components of the EcoCabin include:

- E-COMPACT Commercial Pellet boiler
- Buffer Tank 1500-3000L
- Heat Metre (Kamstrup) RHI Compliant
- Fuel Transportation system (Cyclomatic or Flexi Auger)
- Plate Heat Exchanger
- Pre wired & plumbed in 2" mappress pipework
- Remote Control and wireless modem
- Wilo Stratos 40 Pumps
- Chimney (8" Twin wall Stainless Steel)



100kW EcoCabin

The Boiler

- 90%+ efficiency
- Automatic Burner Cleaning, Boiler Cleaning and De-ashing (low maintenance)
- 7 steps of Burner modulation
- Buffer Management control



E-Compact 199KW

Fuel Storage

WES can supply EcoCabins with integral Fuel stores or as is most common in the Poultry sector growers select a large silo (15-20 tonnes capacity) and feed the boiler in the EcoCabin via Flexi auger. Pellets are blown via bulk delivery trucks and typically a 200kW boiler will consume 60-70 tonnes per annum.



20 tonne fuel store with EcoCabin



Pellet truck Delivery

Heat Distribution

Getting the correct heat distribution specification is crucial to the success of any poultry biomass heating system. WES Boilers have been used with

- Draper
- CUBO
- Multi Heat
- Finned Pipe (Turnbull & Scott)

Optimal positioning of the heat emitters is essential for maximising distribution and creating consistent bird growth throughout the poultry house.



Finned Pipework for Heat Dispersion



Lincolnshire poultry farmer installs novel Biomass Heating solution

LPG Bills eliminated by RHI Scheme

Client	Moor Farm
Location	Moor Farm, Saxilby, Lincolnshire
Installer	Land Energy
Equipment	E-COMPACT 199kW & Integrated Store

Farm Profile

Moor Farm based in Lincolnshire is a poultry producer supplying to one of the largest poultry processors in the UK. The farm consists of 7 broiler sheds.

Renewable Heat Incentive (RHI) – A Compelling Financial Business Case

Poultry farmers require consistent heat and as a result have large energy bills. Most farms are off the gas grid and so used predominantly LPG as their heating fuel. By switching to wood pellet Moor Farm can expect to reduce its fuel bills by 50%. On top of that they can expect to earn between £16,000 and £22,000 per shed (varies depending on heat load) from the RHI p.a for the next 20 years.

This represents spectacular savings for the poultry farmer.

Biomass Heating System

The farmer has 4no EcoCabins and is now heating his entire farm with wood pellets.

Time was a critical factor as the sheds were being cleared for a crop changeover cycle and day old chicks were being housed on the following Monday.

Moor Farm used a finned pipe system around the perimeter of the shed instead of the typical fan coil systems traditionally used. The pipework contains 600L of water and disperses a nice consistent heat at 32° C when the birds were introduced.



One of 3 EcoCabins on Moor Farm



Moy Park rolls out EcoCabin in major UK biomass heating programme

**12MW
of WES
EcoCabins**

Client	Moy Park
Location	Lincolnshire
Installer	Cofely GDF-Suez
ESCO Provider:	SDCL
Equipment:	199kW EcoCabin (WES), 4no 50kW Draper FANCOIL HW
Average Shed Size:	1,355m³



In 2012 Moy Park invited tenders to supply a fully funded ESCO (Energy Supply Contract) biomass heating systems on Moy Park owned Farms in Lincolnshire.

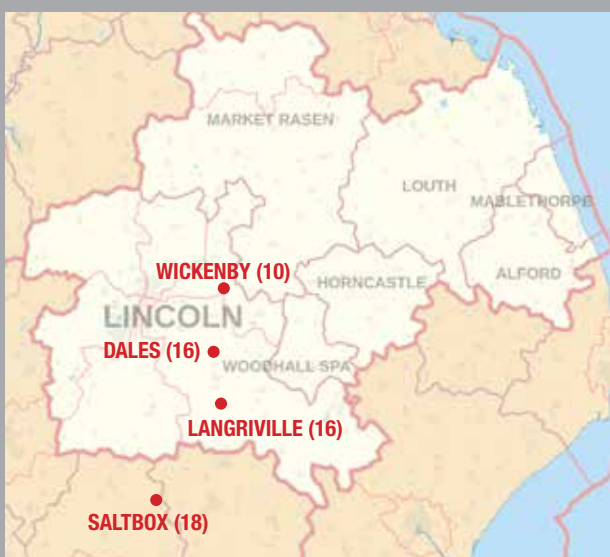
Irish manufacturer WES Boilers through its ESCO partner won against stiff competition to win this prestigious contract. The project was split across 4 farms with WES supplying 60no EcoCabins (12MW).

Project scope

SDCL the ESCO provider, was awarded the contract to supply renewable heating to Moy Park farms. The ESCO provider funds the equipment, installation, maintenance and fuel supply and in

return receives quarterly RHI payments (based on kWh produced) from the UK Government. The RHI is an indexed linked programme whereby the biomass equipment owners will receive payments for the next 20 years.

Moy Park the client benefits from guaranteed lower heating costs vis a vis LPG, has no capital outlay and all the operating and maintenance costs are covered by the ESCO provider. Moy Park as part of the contract guarantees a minimum of 250,000kWh per shed p.a. The ESCO provider was successful in getting 44no EcoCabins installed by 21st December 2014 thereby locking in at an attractive RHI tariff of 7.6p/kWh (indexed linked) for the next 20 years (typical biomass heating cost 4p/kwh).



Locations and quantity of EcoCabins in Lincolnshire





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MANUFACTURERS OF RENEWABLE HEATING PRODUCTS