



# Schools Case Study

## A switch to natural gas leads to reduced costs and increases in energy efficiency



Scoil Mhuire, Lucan is a primary school catering for children ranging from 4-12 years of age.



*Scoil Mhuire, Lucan, Co. Dublin*

When Scoil Mhuire decided to undertake an energy upgrading programme in 2016, it offered the school the chance to look at its fuel source. After reviewing the options that were available the school decided to make the transition to natural gas. The school had been previously using oil for almost 50 years to meet their heating and hot water requirements.

With the changeover the school quickly realised that by opting for natural gas they were choosing an energy source that is environmentally friendly and highly efficient. One of the biggest benefits of having natural gas as their source of heating is the continuous supply. The school now has a constant, uninterrupted supply and this has resulted in overall savings in excess of €2,500 each year.

High efficiency condensing natural gas boilers and monitoring equipment were installed in the school's boiler room, with the monitoring devices and Building Energy Management System (BEMS)

allowing the school to measure the amount of natural gas being consumed and enabling the school to control operating costs. In addition, controls were installed to allow zoned heating for specific classrooms, the gymnasium and the school theatre, ensuring heating is only used where needed and a decrease in the amount of time required to heat up.

An important advantage of natural gas is that it is piped directly into the property, so there is no longer a need for fuel deliveries. Deliveries had previously been awkward, requiring scheduling outside school hours.

There is no longer a requirement for staff supervision during oil deliveries. Removing the need for storage also removed the risk of oil theft, a problem experienced by other schools over recent years. The removal of the oil tank also created more space in the school property, resulting in a safer school yard.

### Switching to natural gas has provided Scoil Mhuire GNS with the following benefits:

- Significant cost savings
- Lower CO<sub>2</sub> emissions
- Reduced fuel usage (higher efficiency)
- Reduced risk of fuel theft
- Monthly billings
- Operational efficiencies /staff involvement
- Storage savings

Annual energy saving of circa €2,500

Increase in overall efficiency leading to a reduction in fuel usage

Lower maintenance costs

No longer required to order and arrange delivery of fuels

*“As part of our recent refurbishment we replaced our oil boilers and heating system with a cleaner and more efficient natural gas system. The benefits of this include lower overall running costs, no longer having to order or store fuels on site and the new gas boilers and controls allow greater measure of overall energy usage.”*

*Mary McIvor, School Principal*

## Benefits of Natural Gas Over Oil

- Fuel cost has decreased by circa €2,500 per year
- Overall efficiency increase in the heating system
- Modern condensing gas boiler and zoning controls
- No storage or deliveries required
- No need for oil tank taking up important real-estate

## Natural Gas Installation Process

Modern condensing natural gas boilers were installed in place of the previous equipment which included an oil boiler. The school is located close to the natural gas network and a gas service was required to connect from this network into the agreed meter location. Gas Networks Ireland provided the school with a quotation for the meter and service, including all the required civil works to bring the gas service into the school. Once this was paid, the meter and service were installed and the gas was turned on when the works on the school boiler room were completed and tested.

## Description of Energy Facilities

There is one main boiler-house on site with total boiler output of 600 kW. There is also a gas fired water heater on site with total output of 150kW. Each classroom as well as the gymnasium and school theatre have motorised valves and wall mounted stats which feed data into the Building Energy Management System (BEMS). The hallways and common area are heated by radiators which are maintained at a constant temperature.

## Integration

Supply was taken from the natural gas meter and brought to the boiler-house, through the downstream pipework installed by MPH Mechanical Plumbing Heating Ltd. This was supplied directly into the boiler-house to supply the new high efficiency boiler.



*Natural gas boiler*



*Natural gas meter with meter protection*

## Technical Team

### Building Services Design:

#### MPH Mechanical Plumbing Heating Ltd

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*This information is only a guideline to the different products available for use with natural gas in new development construction. Users should ensure that products are suitable for the specific circumstances in which they seek to apply them. Contact the supplier or manufacturer directly for specific information on building requirements and materials needed for installation. Professional advice specific to the project should always be sought. The current Irish Gas Standards and Technical Guidance Documents (Building Regulations) override all contents. Users should ensure they always have the most up to date information.*