

How to Read your Oil Meter

This Factsheet gives advice on how to monitor your oil use. More information about saving energy in schools and how to read electricity, gas, and water meters can be found on the Energy in Education website at www.energyineducation.ie.

Why monitor oil use?

If you want to save energy and money you need to know how much energy you are using. Monitoring your oil use will help with this. The account you hold with your oil supplier is like a bank account: if you don't monitor it, how can you manage it? One easy way of saving money is to ensure that you buy oil competitively. It is recommended that you buy oil via the Office of Government Procurement (OGP). If you choose not to use the OGP, each time you order oil you should obtain three competitive quotations and purchase from the most competitive supplier.

There are several different ways to monitor how much oil you are using, depending upon what oil metering the school has, if any. Schools sometimes have oil meters inside the boiler house, but are unaware of the existence of the oil meter. If the school has no oil meter, you can still take measures to monitor oil usage.

If the school does have an oil meter, the more often you read your meter, the more useful the readings will be in helping you control your oil usage. Weekly readings, and readings before and after each holiday are recommended. It is best to read the meter at the same



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time of day and same day of the week. It is a good idea to put a reminder in the mobile phone of whoever is going to read the meter.

By subtracting one meter reading from another, you can calculate how much oil the school used in that period. For the type of meter shown here, read from left to right. This meter is reading 36,277 litres.

Example 1: Weekly readings:

Reading on Friday, week 2, 3 p.m.:	36,277 litres.
Reading on Friday, week 1, 3 p.m.:	36,024 litres.
Oil used during 7 days:	253 litres

When reading an oil meter, do not bother reading any numbers in red or surrounded by red, they are recording small quantities of oil. If there is both a single dial reading and numeral readings, do not bother with the dial reading. It too is recording small quantities of oil.

Where is the oil meter?

Oil meters are in different places in each school. Some common locations are:

- In the boiler house where the oil pipework enters the boiler house (either from underground or from an adjacent tank room, if the tank is indoors).
- In the boiler house on the oil pipe near the front of the boiler. If the school has more than one boiler, there may be a meter on each boiler.
- Wall mounted in the boiler house, often near the door.
- Near the oil tank, on a pipe leaving the oil tank near its base.
- Other locations.

Oil pipework is almost never insulated in Ireland, and generally is close to the floor or running across the floor. It feeds each boiler's burner. You could trace the pipe back to where it enters the boiler house, usually in the general direction of the oil tank.

If you are not sure where your meter is, ask the Principal or caretaker. If they are not sure, ask the person who maintains the boiler.

Methods of measurement

Oil meters look similar to some water meters, and may even have a manufacturer's name on



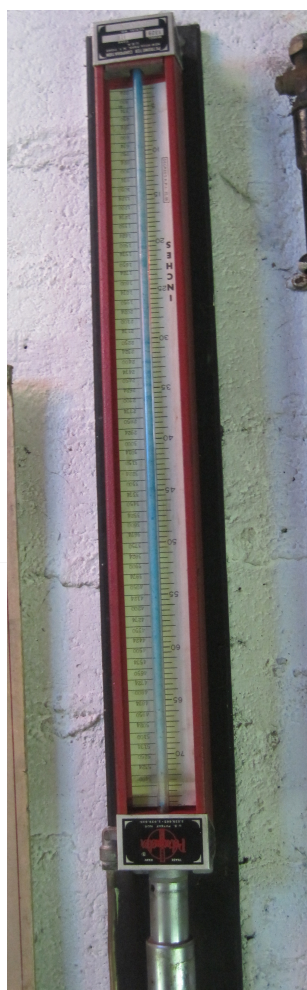
Oil meter

the face of the meter which might lead you to believe the meter is monitoring water, not oil. If the meter is underground, it is a water meter. If the meter is in the boiler house and the pipe is insulated, that is a water meter. There is a separate Factsheet about water meters. Some oil meters have an inlet pipe and an outlet pipe, and count the oil flowing through the meter.



Dial tank meter

Other meters have only a small inlet pipe which is connected to the tank, and these meters indicate how much oil is left in the tank. Some work using a manometer, familiar to physics students. The gauge shown here says that it is measuring in litres. It says there are about 200 litres in the tank.



Column tank meter

Another type of tank meter uses a vertical glass gauge similar to an old fashioned thermometer, but much taller. This type of gauge usually requires a handle below the gauge to be operated like a bicycle pump to obtain a reading on the gauge. The liquid in the gauge is often red in colour. Be careful to read the units on the gauge: it could be litres or gallons, but is also likely to include a second scale which measure the depth of oil in the tank in inches or centimetres. Read the scale which gives a volume reading.

Quite a few schools have a device plugged into an electrical socket in the school which indicates approximately the level of fuel in the oil tank. These devices are mainly designed to alert the school when to order more oil, and are not suitable to measure fuel energy use because they are not calibrated to individual tank shapes.



Dipstick Scale

Some schools have a calibrated dip-stick which came with the tank. The caretaker can use this dip-stick to measure how much

oil is left in the tank. Care must be taken to ensure that the school understands the scale on the dip-stick. In older schools, it is quite likely to be gallons. There are 4.54 litres in a gallon. You can determine the scale by dipping the tank before and after a delivery, and comparing the readings with the delivery docket, which will show how many litres were delivered.

When using a dip-stick, be careful to fully consider health and safety. If it is not safe to dip the tank, don't. If the school has none of the above means of measuring the oil consumption, then you will have to revert to using delivery dockets.

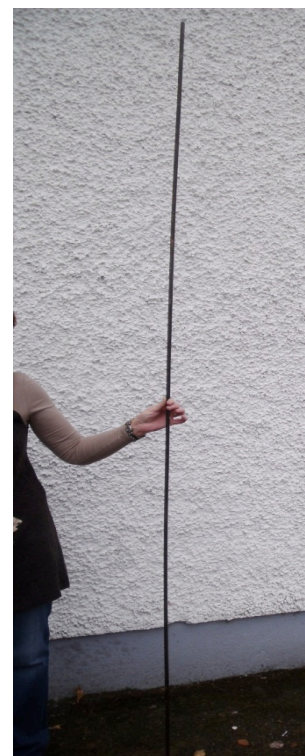
However, there are still things you can do to gain a better understanding of your oil use; for example, on the same date each year, consider asking for the tank to be filled to maximum capacity. That way, you will be able to calculate exactly how much oil has been used in the 12 month period.

Example 2: Delivery Dockets

<u>Delivery on 12 October 2017 (tank filled)</u>	<u>x,xxx litres</u>
Delivery on 17 December 2017	4,000 litres
Delivery on 26 February 2018	4,000 litres
Delivery on 2 April 2018	3,000 litres
Delivery on 12 October 2018 (tank filled)	6,455 litres
Oil consumed in last 12 months	17,455 litres

Alternatively, always ask the tank to be filled full at every delivery, that way you will always know how much you have used since the last fill. However, this will mean that your tank often contains a larger quantity of oil than might otherwise be the case. You may prefer only to fill the tank full once per year. One way to mitigate this risk is to have the heating converted from oil to LPG or natural gas, both of which are cheaper than oil, and both have a lower carbon content than oil.

For information on joining the OGP LPG and Natural Gas for Education contracts, please contact: ngcontracts@ogp.gov.ie. To assist OGP in with your



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query, include a copy of your most recent fuel bills (front and back) to allow them to determine the rate applicable for your site. Note: for information on joining the OGP Electricity for Education contract, please contact support@ogp.gov.ie

Irregular deliveries

If you have oil deliveries which vary in size, and the tank is never filled full, then you can only obtain a very rough estimate of oil consumed in any one year. It is better to adopt one of the methods described above. However, if you have historic data, you can see how much oil is delivered over, say, 3 years, and take an average to obtain an annual consumption.

Installing a meter

If the school does not have an oil meter, consider (if not planning to upgrade the heating system or fuel supply choice) having one installed next summer when the boiler is being serviced. The meter should be located inside the boiler house, and should include a bypass with shut-off valves on the inlet and outlet of the meter and on the bypass. The bypass is used if the meter needs servicing or replacing.

Adjusting for weather

Recent cold winters have resulted in significant increases in fuel use in schools during the cold spell. Variations of up to 40% in oil use can occur between a very mild winter and a very cold winter. Methods to take the weather into account are beyond the scope of this factsheet, however you should consider this when comparing one year's usage to another.

Units of energy

The units of energy you should use are kWh (kilowatt hours). This is the same unit used on your electricity bill and used in Europe for reporting building energy use.

Calculating energy use

To calculate energy use in kWh, the quantity of oil used must be converted from the litres to kWh by multiplying:

- for gasoil, by: 10.169 (most schools)
- for kerosene, by: 9.821 (some schools)

The delivery docket will show which fuel type was delivered.

Example 3: Oil used in 12 months:

Oil consumed in last 12 months	17,455 litres
Multiply by 10.169	10.169
Oil consumed in 12 months	10.169x17,455 kWh
Oil consumed in 12 months	177,500 kWh

Obtaining historical data

If you want to obtain information of how much oil the school has been using over recent periods, your oil supply companies will provide this information to you, often over the phone. Don't forget that if you buy from several companies, you will have to contact them all. Have your account number to hand. Each company will keep a record of deliveries. Ask them to tell you over the phone or by email the date of each delivery, and the litres delivered, and the type of oil.

Still don't know how to read your meter?

If you are in doubt about how to read the oil meter after reading this Factsheet, ask the person who maintains your boiler.

Summary

To save on oil costs, you need to manage your oil use. To do that, you need to read the meter at suitable intervals, say weekly, and work out how much oil you are using each week. You need to know where the meter is in the school. You may have more than one meter. You need to know how to read the meter, and how to calculate energy used (in kWh) from the readings by applying a conversion factor. If you don't have a meter, you may be restricted to monitoring your oil use annually.

You should consider having a meter installed to overcome this difficulty. By monitoring your oil use you are more likely to be able to save money.

Other factsheets at www.energyineducation.ie provide information about how to read your electricity and water meter, and how to save energy in your school.