



Public Sector Energy Monitoring & Reporting System

Getting Started Guide:

2016 Reporting Cycle

IMPORTANT

1. This is a 'quick guide' only. There is a comprehensive knowledge base of detailed support materials available [from the Help, Guidance & Support web page](#) – see §7 of this document for further details.
2. The **deadline** for submitting & validating MPRNs & GPRNs is 27th January 2017
3. The **deadline** for submitting all other data is 28th April 2017

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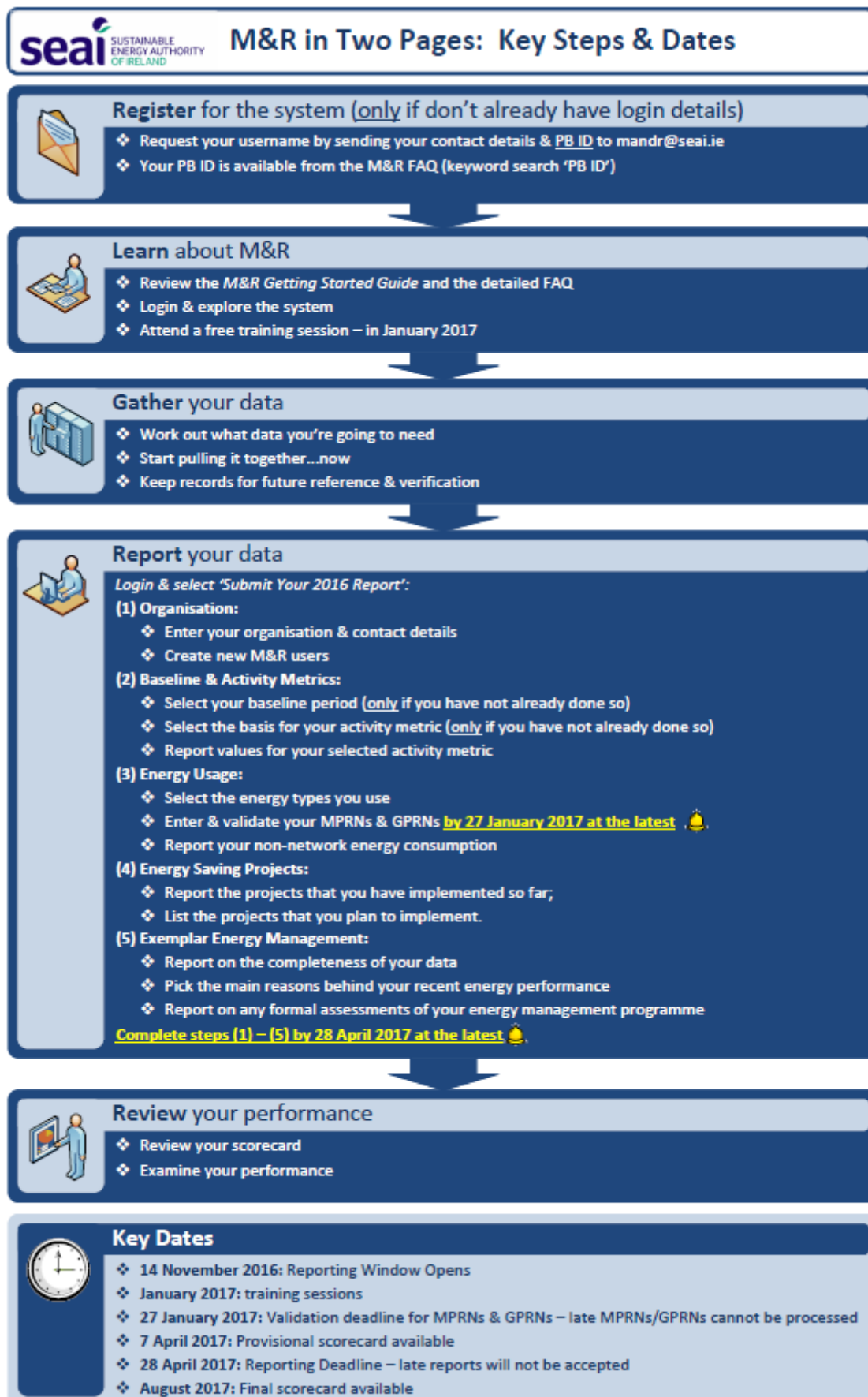
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SUMMARY OF KEY STEPS



1 BACKGROUND: THE MONITORING & REPORTING (M&R) SYSTEM

This section provides background and contextual information on the M&R system and summarises its key operational principles. For specific guidance on what you need to do to report your data, go directly to §2.

1.1 Context

1.1.1 33% Target

The *National Energy Efficiency Action Plan 2014* reaffirmed Ireland's commitment to 33% energy savings for the public sector by 2020. This target was initially set out in the 2009 action plan: *"The public sector will improve its energy efficiency by 33% and will be seen to lead by example — showing all sectors what is possible through strong, committed action."*

The 33% target is an *energy efficiency* target and it applies to all public bodies¹, i.e. all public bodies must improve their energy efficiency by 33% by 2020, equivalent to 3,240 GWh².

1.1.2 Requirement to Report Data

The *European Union (Energy Efficiency) Regulations 2014* (SI No. 426 of 2014) set out several obligations on public bodies with respect to their "exemplary role" for energy efficiency. Among them is a requirement to report data.

Since 1st January 2011, public sector bodies are required to report annually on their energy usage and actions taken to reduce consumption. There are two key obligations:

- Requirement to report the organisation's energy performance directly to the SEAI each year³ – to track progress towards the 2020 target;
- Requirement to include a statement on the organisation's energy performance in the organisation's own annual report⁴. This section must describe *"the actions it is taking, or has taken, to improve its energy efficiency and an assessment of the energy savings arising from those actions"*.

¹ For the purposes of the target, the public sector is considered to encompass the Civil Service, commercial and non-commercial State Bodies, State-owned financial institutions, the Defence Forces, An Garda Síochána, Health Service Executive hospitals and other facilities, Local and Regional Authorities, schools and universities.

² Primary energy equivalent

³ Regulation 5(3), SI No. 426 of 2014

⁴ Regulation 5(5), SI No. 426 of 2014

1.2 M&R System Overview

The SEAI and the Department of Communications Energy & Natural Resources (DCENR) have developed an energy monitoring & reporting (M&R) system to satisfy the reporting requirements of both SI 426 of 2014⁵ and the NEEAP. As well as enabling public bodies to report and track their energy data annually, the system provides senior management with a scorecard that presents a powerful snapshot of both the organisation's progress to date and its performance compared to its peers. The system gives every public body online access to its annual electricity and natural gas consumption data.

The system includes a National Public Sector Energy Database which: informs the development of national policy and programmes; facilitates the generation of national statistics and the fulfilment of Ireland's international reporting obligations, and; facilitates the development of the energy services market.

The system has been implemented in phases. The first phase (2011) involved the development of a methodology for monitoring and reporting energy efficiency in the public sector and the trialling of the proposed methodology through a pilot reporting exercise with a small cohort of exemplar public bodies. This phase also involved the collation of network-connected energy consumption data (electricity and natural gas) for about 300 of the largest public bodies. Phase two (2012 & early 2013) involved the development of a web-based IT reporting system incorporating the methodologies developed and refined in phase 1. The largest 100 energy consumers in the sector were also requested to report using an interim spreadsheet-based reporting format. The online system was launched in July 2013 – and all data previously reported to SEAI during phases 1 and 2 was migrated into the online system.

Phase 3 (2013 onwards) involved all public bodies reporting through the web-based IT system.

1.3 Reporting Methodology

1.3.1 Annual Energy Reporting

The key principles of the reporting methodology are:

- Individual public bodies report annually for the previous year⁶. There is a defined *reporting window* during which public bodies must report. The cycle repeats annually.
- Public bodies report their energy consumption for *all fuel types* (electricity, thermal fuels and transport fuels (including fossil and renewables)) at an *organisational level*.
- Public bodies report baseline data on a once off basis.
- Public bodies then report their energy consumption *annually* for the previous year:

⁵ And SI 542 of 2009

⁶ For the current reporting cycle, public bodies are required to report data from their baseline periods up to 2016 during a ~5 month reporting window from 14 November 2016 to 28 April 2017. See §2 for further details.

- For electricity & natural gas, all public bodies have to do is submit their meter numbers once to the SEAI (MPRNs⁷ & GPRNs⁸) and then validate them annually. SEAI accesses the energy consumption data corresponding to these meter numbers directly from the regulated meter operators (ESB MRSO and Gas Networks Ireland) each year.
- For all non-network connected energy sources (e.g. heating oils, LPG, solid fuels, diesel), public bodies self-report their total consumption subtotals directly to the SEAI.
- Each year, public bodies self report an activity metric that describes the activity level in their organisations.

1.3.2 Energy Types

The system enables users to report their organisation's consumption of all energy types (see §6.2 for full list). These can be classified as follows:

- *Electricity*: All electricity consumed 'on site' by the PB, which comprises all electricity imported from the grid (i.e. through a meter), all 'non-fuel' renewable electricity generated *on site* (e.g. auto-generating wind turbine, small scale hydro facility) and the output from any landfill gas generation facilities. It does not include electricity exported by the PB onto the grid. Electricity used to charge electric vehicles offsite is also included.
- *Thermal*: All solid, liquid and gas fuels used for non-transport purposes. This includes both fossil and renewable fuels used in boilers, space & process heating systems, catering, fuel based electricity generators (onsite), CHP and in all plant, equipment & other non road-mobile vehicles. It also includes any heat imported from district heating schemes, net of any heat exported by the public body to a district heating scheme.
- *Transport*: All transport fuels (including electricity metered exclusively for transport) used by the PB's transport vehicles (road, rail, air, water). This includes both fossil and renewable fuels.

See §6.2 for description of all energy types.

1.3.3 Scope of the Energy Consumption

All of a public body's energy consumption must be reported.

More information on scope of reportable energy consumption (click on links):

- [Organisational Boundaries – What's Included?](#)
- [Organisational Boundaries – Landlord & Tenant](#)
- [Sub-organisations – Who Reports?](#)

⁷ An MPRN or *meter point reference number* is a unique 11-digit number assigned to every single electricity connection and meter in the country.

⁸ A GPRN or *gas point registration number* is a unique reference number assigned to every gas point on the natural gas network

1.4 Energy Savings Methodology

1.4.1 Tracking Progress to 33%

It is difficult to directly 'measure' energy savings. Therefore, determining energy savings always involves analysing changes in other parameters that are directly related to the energy use. The methodology used for tracking energy savings in the monitoring & reporting system calculates savings on a top down basis for each organisation. There are two key reporting indicators calculated for each organisation each year:

- *Primary reporting indicator:* Energy performance indicator;
- *Secondary reporting indicator:* Total primary energy requirement.

1.4.2 Primary Reporting Indicator: Energy Performance Indicators

Many organisations try to measure their energy performance simply in terms of the total energy used. But energy performance is not the same as energy use. Measuring energy use alone does not enable organisations to determine if energy is being used *efficiently* or not.

To overcome this, the SEAI system uses energy performance indicators (EnPIs) to measure each organisation's energy performance. This enables organisations to determine how efficiently they are using energy because it accounts for changes in the activity level related to the energy use - or 'activity metric' - of the organisation.

Each year, an EnPI is calculated by dividing the organisation's *total primary energy requirement* (TPER) by an *activity metric*:

- The TPER is a measure of all of the energy consumed by the organisation, which accounts for the energy that is consumed and/or lost in transformation, transmission and distribution processes (e.g. *electricity* generation transmission and distribution). The TPER is calculated by applying published conversion factors to each element of the organisation's energy consumption. There are different conversion factors for electricity and for each of the thermal and transport fuel types – click [here](#) for TPER and conversion factors. The thermal element of the consumption is also adjusted for degree days to account for weather-related variations in energy consumption.
- The activity metric is a measure of the activity that the organisation undertakes. Ideally, the activity metric should quantify the key activities that affect energy use, e.g. for organisations in which most of *the* energy consumption is in *buildings*, good activity metrics are: the total useful floor area that is heated or air conditioned; the number of people that benefit from the energy service provided (e.g. number of employees for office-based organisations, number of students for universities, etc.).

So, an organisation's 2016 EnPI is calculated as follows:

$$EnPI_{2016} = \frac{\text{Energy Consumption (as TPER)}_{2016}}{\text{Activity Metric}_{2016}}$$

The *primary indicator* for tracking each organisation's energy savings is the change in the organisation's EnPI each year. Expressed as a percentage savings between 2009 and 2016, this would be worked out as follows:

$$Savings_{2016} = \frac{EnPI_{2009} - EnPI_{2016}}{EnPI_{2009}}$$

This methodology accounts for an organisation's energy performance as well as its energy consumption. Specific advantages of this approach include:

- Workable because it requires relatively limited data compared to bottom-up approaches;
- Focuses on organisation level performance;
- Avoids a double counting problem (interference between energy saving measures);
- Avoids requirement to demonstrate causality between measures and savings;
- More easily understood than bottom-up approaches;
- More robust than other top-down approaches;
- Consistent with the definitions of 'energy efficiency' and 'energy savings' used by the European Commission;
- Facilitates benchmarking;
- Gives credit to organisations for implementing measures that reduce transformation and system losses at a national level.

More information on the energy savings methodology & activity metrics (click on links):

- [Calculating Energy Savings & Tracking Progress to 2020](#)
- [Reporting Activity Metrics](#)

1.4.3 Secondary Reporting Indicator: Total Primary Energy Requirement

A *secondary indicator* for tracking each organisation's energy savings is the change in the organisation's energy consumption (as TPER) each year. Expressed as a percentage savings between 2009 and 2016, this would be worked out as follows:

$$Savings_{2016} = \frac{TPER_{2009} - TPER_{2016}}{TPER_{2009}}$$

1.4.4 Baselines

The progress made by an organisation in meeting its 2020 target is measured against a historical baseline. There are several alternative baseline periods. Public bodies can choose whichever of the following baseline periods suits them best:

- 2001-2005 (energy consumption and activity metric data averaged across these years);
- 2006-2008 (energy consumption and activity metric data averaged across these years);
- 2009 (energy consumption and activity metric data for this single year).

2009 is the default baseline for all non-school public bodies⁹.

⁹ Including schools in the ETB sector.

1.4.5 Level 2 EnPIs

The system also calculates up to three level 2 Energy Performance Indicators (EnPIs) for each organisation. These are not used for tracking progress towards the overall target but they are useful to help organisations understand their energy performance:

- An electricity EnPI based on the organisation's electricity consumption.
- A thermal fuels EnPI based on the organisation's adjusted thermal fuels consumption (adjusted for degree days).
- A transport fuels EnPI based on the organisation's transport fuels consumption.

The different EnPIs give insight into different aspects of the organisation's energy performance.

More information on the energy savings methodology (click on link):

- [Calculating Energy Savings & Tracking Progress to 2020](#)

1.5 Target Methodology

1.5.1 Target

The target for all public bodies is a 33% energy efficiency improvement by 2020. These targets are based on the primary EnPI-based approach, i.e. the organisation's primary reporting indicator. The organisation's energy performance indicator (EnPI) must improve by at least 33% between the baseline period and 2020 to reach the target. Put another way, to achieve the target the following must hold true:

$$Savings_{2020} = \frac{EnPI_{Baseline} - EnPI_{2020}}{EnPI_{Baseline}} \geq 33\%$$

The target % applies to whichever baseline period that your organisation selects. If your organisation has implemented energy saving initiatives in the 2000s, then it is most likely in your interest to consider using an earlier baseline.

More information on targets (click on link):

- [Targets](#)

1.6 Data Validity

1.6.1 Mechanism for Assessing Data Validity

All of the data submitted must be robust and, insofar as is practical, verifiable. The validity of submitted data will be checked in two ways:

- Validation rules built into the reporting software to check for order of magnitude errors when entering inputs, e.g. by warning users if the reported energy consumption for a particular fuel is *significantly* higher / lower than that reported for the previous year.

- Data verification assessments (DVA) of submissions, which consist of a number of levels of rigour. At the 'lowest' level, this can involve a request to a public body to provide substantiation for a specific piece of data submitted (different forms of substantiation may be accepted, depending on the data). More comprehensive assessments can include an 'on-site' review by a suitably qualified SEAI assessor of the submission with the person(s) responsible for its compilation.

Selection for data verification assessment will be dependent on several factors including *inter alia* the apparent validity of the data submitted (as interpreted from the validation rules built into the tool), consistency & completeness of submissions over time, and the findings of previous data verification assessment. Organisations that adjust baseline and historical data will be more likely to be selected for data verification assessment. There will also be a random element to selection.

Over half of the reports submitted through previous reporting cycles were selected for data verification assessment.

1.6.2 Acceptability Thresholds

It is recognised that some public bodies may struggle to gather good quality data for all of their consumption in earlier years. Public bodies also have the facility to build their baselines over time, i.e. to improve the quality of their historical data over subsequent annual submissions. To accommodate this, the thresholds for acceptable data accuracy are broader (laxer) in the first few years of the system. As public bodies develop experience with the reporting concept and build their energy management competence and systems, it is reasonable to expect that the quality of their data will improve; therefore, more stringent acceptability thresholds apply over the coming years.

The thresholds beyond which submissions will be deemed to have failed data verification assessments are set out [here](#).

1.6.3 Onus on Public Bodies

It is up to public bodies themselves to ensure that the data they submit meets the data validity criteria, including the [data acceptability thresholds](#). SEAI cannot advise public bodies on the acceptability of specific approaches proposed to calculate or estimate historical consumption, or on the acceptability of the assumptions that underpin them.

More information on data validity, data completeness and data accuracy (click on link):

- [Data completeness & accuracy](#)

2 2016 REPORTING CYCLE

2.1 Scope – Who Needs to Report?

The **public bodies that did previously report** through the M&R system (in late 2015 / early 2016) are now required to submit annual data for 2016. These organisations should also review, and if necessary, edit the data previously reported for the period from their baselines to 2015 – to ensure that this data is robust.

Those **public bodies that *did not* previously submit complete reports** through the M&R system are now required to submit annual data from their preferred baseline periods to 2016 (inclusive).

If your organisation has been requested to report for 2016 and if you believe that the reporting obligation does not apply to your organisation, please contact the helpdesk at MandR@seai.ie.

If your organisation has recently merged with, or been subsumed into, another organisation, you should also contact the helpdesk.

2.2 Schedule & Deadlines

Reporting Schedule & Deadlines

- **14 November 2016 – Reporting Window Open:** public bodies can report data from this time.
- **January 2016 – Training Workshops:** SEAI training workshops and working groups on the M&R system – see §7 for more information.
- **27 January 2017- MPRN and GPRN Deadline¹⁰:** This is the deadline for submitting & validating all MPRNs and GPRNs. Non-validated MPRNs or GPRNs or meter numbers entered after this date will not be processed for this reporting cycle.
- **7 April 2017 - Provisional Scorecard Available:** provisional scorecards – that show progress towards the 33% target as well as a breakdown of performance – will be available for review online from this time onwards. See §5.1.
- **28 April 2017 - Reporting Deadline:** This is the deadline for reporting all data. The system will not accept reports beyond this deadline.
- **May-August 2017 - DVA Window:** data verification assessments will be undertaken during this period. See §5.2.
- **August 2017 - Final Scorecards Available:** final scorecards will be available for review online from this time onwards. See §5.3.
- **November 2017 – Reporting System Open for 2017 Reporting Cycle:** the next annual cycle will commence.

3 ACCESSING THE M&R SYSTEM

The secure online M&R system is at <https://psmr.seai.ie/>. Users require a valid user name¹¹ and password to access the system.

3.1 Registering

Note that you only need to register for the system if you have not previously done so. If your organisation is already registered, you can skip this step and proceed directly to logging in to the system.

To register on the system, simply send an email with the following information to mandr@seai.ie:

- Email address to be used as the user name. Note that this must be a *valid* email address.
- Name of the person who will be the main M&R system user from the organisation.

¹⁰ Immediately after this deadline, the SEAI will issue the validated MPRNs and GPRNs to the regulated meter operators (ESB Networks MRSO and Gas Networks Ireland). The meter operators will provide consumption data back to SEAI, who will upload it immediately to the system (by 7 April 2017).

¹¹ The user name must be in the form of a *valid* email address.

- Name of the organisation.
- Public body identification (PB ID) number. This is a unique identification number – in the format PB-12345 – assigned to each *public body* by SEAI. All PB IDs are available from [this page in the M&R FAQ](#).

You will then receive an email with your login details.

3.2 Logging in for the First Time

SEAI is committed to incorporating robust data protection principles into the M&R process. For this reason, SEAI requires that you accept the terms and conditions for the use of the system when you log in for the first time each year (only). The terms and conditions are also available [on this page](#).

3.3 Creating Multiple Users

Once you have logged in, you can create additional M&R system users for your organisation

4 REPORTING YOUR DATA

The following is a brief summary of the key reporting steps:

- A. Login to the system (see §3)
- B. Click 'Submit Your 2016 Report'
- C. Enter data via the five numbered 'tiles':
 - (1) Organisation:
 - Enter/edit contact details for your organisation;
 - Create new M&R system users (optional);
 - Enter/edit any sub-organisations for which you are reporting (optional) ([see FAQ](#));
 - (2) Baseline & Activity Metrics:
 - Select your baseline period (see §1.4.4);
 - Select the basis for your activity metrics (see §6.1 and [FAQ](#));
 - Report values for your selected activity metrics.
 - (3) Energy Usage:
 - Select the energy types that your organisation uses (see §6.2);
 - Enter/edit & validate your MPRNs and GPRNs (see overleaf and [FAQ](#)) – **this step must be undertaken by 27 January 2017 at the latest**. Non-validated MPRNs or GPRNs or meter numbers entered after this date will not be processed for this reporting cycle. **Note that you do not need to enter the consumption data**

corresponding to these meter numbers. The system automatically accesses this data from the regulated meter operators (ESB MRSO and Gas Networks Ireland).

- Report your non-network energy consumption data (see §1.3.1 and FAQ ([thermal](#) and [transport](#)));
- (4) Energy Saving Projects:
- Report details on the energy saving projects that your organisation has implemented;
 - Report details on the projects that your organisation plans to implement.
- (5) Exemplar Energy Management:
- Report on the completeness of your data
 - Report the main reasons for your organisation's energy performance in the period;
 - Report details of any formal assessments your organisation has undertaken on its energy management programme.

Steps (1) – (5) must be completed by 28 April 2017 at the latest. This is the reporting deadline. The system will not accept reports beyond this deadline.

The above is a high level summary only. The [M&R User Guide](#) provides step-by-step instructions on entering your data. See §7.

MPRNs & GPRNs

There are four main actions required to report your MPRNs (and GPRNs):

1. Review the list of MPRNs (GPRNs) already in the system and add, remove, edit MPRNs (GPRNs) as appropriate.
2. Classify your MPRNs (GPRNs) by completing the relevant fields for location, county and consumption category. You can also optionally enter additional data related to procurement and 'tag' your MPRNs to classify your MPRNs in any manner that makes sense to you. *Note that this step need only be undertaken once, i.e. the values entered carry forward from year to year. However, data should be edited to keep it up to date.*
3. Enter the % of consumption through the MPRN (GPRN) that is *attributable to your organisation* for each year. If the MPRN is not shared with another organisation in 201X, then enter 100% for '201X Attributable'. If your organisation shares the MPRN with other organisation(s) during the year, then estimate the % of the consumption through that meter that is attributable to your organisation and report this %. Most MPRNs are not shared, so in most cases the value entered should be 100%. *Note that this must be done for each year, although there is an option to copy the value from the previous year. Note also that the % consumption reported is the amount that will be counted by the M&R system.*
4. Validate your MPRNs (GPRNs): SEAI is committed to incorporating robust data protection principles into the M&R process. For this reason, SEAI requires that you confirm that your submitted meter numbers are valid and that you consent to SEAI requesting the relevant consumption data from the meter operator(s). *Note that because the ownership of specific MPRNs and GPRNs can change over time (e.g. as organisations change premises), it is necessary to undertake this validation step every year. Note also that the consumption through non-validated MPRNs (GPRNs) will not be counted by the M&R system.*

There is extensive guidance on reporting MPRNs & GPRNs [in the FAQ \(click here\)](#)

MPRNs & GPRNs must be submitted and validated 27 January 2017 **at the latest**. Non-validated MPRNs or GPRNs or meter numbers entered after this date cannot be processed.

Data Completeness & Validity

- Remember that all data entered must be valid and robust. Data will be subject to data verification assessment by the SEAI (see §1.6)
- An element of professional judgement is required in collating all energy data for submission, including that extracted from robust, well-documented sources. However, you should be able provide documented evidence in support of submitted data. This could range from suppliers' bills to internal records etc.
- Notwithstanding this requirement for evidence, data derived from estimates based on professional judgement alone (i.e. where there is insufficient documented evidence in substantiation of the data) is acceptable, subject to these [data thresholds set out in the FAQ](#).
- You will be able to update your 2016 and baseline data in future years, e.g. if better data becomes available.

5 AFTER YOUR DATA IS SUBMITTED

5.1 Provisional Scorecard

Your organisation's *provisional* scorecard – that will show your progress towards the 33% target as well as a breakdown of your performance – will be available for review online from 7 April 2017 onwards (assuming you submitted sufficient data to generate a scorecard). To access your scorecard, login and select 'Review Your Performance'.

5.2 Data Verification Assessment

Immediately after the reporting deadline (28 April 2017), a proportion of the submitted reports will be selected for data verification assessment (DVA) (see §1.6). Some DVAs will be undertaken via email & phone, while some will involve a face-to-face review with the public body.

5.3 Final Scorecard

Your organisation's final scorecard will be available for review online from August 2017 onwards (assuming you submitted sufficient data to generate a scorecard).

5.4 Data Publication

SEAI will publish the following data for your organisation. It is a subset of the data shown in your scorecard:

- Public body name.
- Reporting year, which is the year for which the data is being reported.
- Baseline period selected.
- Percentage change in organisation-level energy performance indicator since previous year.
- Percentage change in organisation-level EnPI since baseline.
- Percentage change in organisation-level total primary energy requirement (TPER) since previous year.
- Percentage change in organisation-level TPER savings since baseline.
- The reason reported by the public body for the trend in the EnPI during the reporting year. -
- List of (up to five) reasons reported by you that contributed to the energy performance during the reporting period.
- Scorecard graphic illustrating the trend in the public body's normalised EnPI since the baseline period and with respect to a target glidepath to 2020. The normalisation is implemented by setting the baseline EnPI to 100 and calculating subsequent annual values for the EnPI relative to this. The normalised EnPI is a convenient way to express the public body's performance since the baseline period and how it is doing compared to the target, without revealing the organisation's activity data.

- Status of the public body's report for the reporting year; the four possible status classifications as 'No Report Submitted', 'Report not Complete', 'Report Submitted – data to be Verified' and 'Report Complete'. Submission date of the last report submitted.
- Quantity of grid electricity consumed by the organisation in the reporting year, expressed in both kWh TFC and kWh TPER.
- Quantity of fossil fuels consumed by the organisation in the reporting year, expressed in both kWh TFC and kWh TPER.
- Quantity of renewable fuels consumed by the organisation in the reporting year, expressed in both kWh TFC and kWh TPER.
- Quantity of organisation-level TFC consumed in the reporting year, expressed in kWh.
- Quantity of organisation-level TPER consumed in the reporting year, expressed in kWh.
- List of energy saving projects implemented in the reporting year and amount of energy savings reported for each, expressed in kWh TFC.
- List of energy saving projects proposed for implementation in years after the reporting year and amount of estimated energy savings reported for each, expressed in kWh TFC.

This data will be published in SEAI's annual report on the sector's progress towards the 33% target. This will highlight progress across the sector as a whole and showcase individual achievements. It will also illustrate each individual public body's energy performance since its preferred baseline period and compared to its 2020 target. Public bodies that fail to report their data in accordance with their obligations will be listed accordingly in this publication.

6 TIPS ON GATHERING DATA

For most organisations, the most challenging aspect of making the submission will be collating the energy consumption and activity metric data. This section provides information to help you:

- Select & calculate good activity metrics;
- Understand which types of fuel you use;
- Work out how much energy you use.

6.1 Selecting & Calculating Activity Metrics

6.1.1 How many activity metrics?

Depending on the type of organisation, users can select different activity metrics for the four different Energy Performance Indicators (EnPIs) (see §1.4). The reason for this is that the underlying activity driving the energy consumption for the different energy types (i.e. electricity, thermal, transport) can be very different. For example, a key driver for thermal energy consumption could be the amount of people or building space to be heated whereas the activity metric for transport fuels would be kilometres-travelled.

The default approach is to use the main organisation-level activity metric for all four EnPIs. You can select alternative activity metrics for the Level 2 EnPIs (see §1.4.5) if you prefer.

All organisations must report data for the following activity metrics:

- Full time equivalent (FTE) employees;
- Total useful floor area.

Note that while all organisations must report data for these two metrics, they are not used to track your organisation's progress against your targets *unless* you select one of these activity metrics as the basis for your organisation-level EnPI.

6.1.2 Selecting Good Activity Metrics

A good energy performance indicator demonstrates a clear link between energy use and the activities that directly influence consumption. Ideally, the activity metric should quantify the key activities that affect energy use. However, selecting a good activity metric for an entire organisation can be tricky. The most important characteristics for a good activity metric are that it is:

- Relevant to what actually drives energy consumption;
- Well defined;
- Understandable;
- Measurable.

Data availability is also a key factor, especially for large, complex and multi-site organisations.

The right metric(s) for your organisation will depend on what activities drive energy consumption in your public body. Some examples of good activity metrics include the following:

- For organisations in which most of the energy consumption is in *buildings*, a good activity metric is the number of people that benefit from the energy service provided (e.g. full time equivalent (FTE) employees for office-based organisations, FTE students for universities, etc.) or else the total useful floor area that is heated or air conditioned.
- Local authorities consume significant amounts of energy for *non-building uses*, e.g. water services and public lighting. For these organisations, the best activity metric might also be based on the number of people that benefit from the energy service; however, in this case, this would be measured in terms of population served (e.g. from the most recent census data).
- The best activity metrics for *transport* are nearly always based on the distance travelled and, ideally, the load transported, e.g. passenger-km travelled for providers of public transport, tonne-km travelled for transportation of goods, road-km travelled for travel by car.

When selecting your organisation-level activity metric, you should consider what activity metrics you are using for each of the electricity, thermal fuel and transport fuel EnPIs and which of these energy types is/are dominant in your overall energy mix. So, for example, if your public body mainly uses electricity, then it would make sense to use the same metric for your organisational EnPI as you do for your electricity EnPI. On the other hand, if your organisation is a provider of public transport, an organisational metric based on passenger-km travelled would be more appropriate.

Remember that the reporting tool automatically suggests a shortlist of appropriate metrics for your type of organisation.

6.1.3 Composite Activity Metrics

Determining a single organisation-level activity metric for large or complex organisations can be difficult because different aspects of the organisation's activity consume different amounts of energy (different energy intensities).

In such cases you can develop a *composite* organisation-level activity metric based on more than one sub activity metric. The scale of each sub activity metric's contribution to the overall activity metric is specified by you and should be based on each sub activity metric's share of the overall energy consumption. See the link to the FAQ (in §6.1.4 below) for more detailed guidance on composite activity metrics.

6.1.4 Calculating Activity Metrics

It is important that organisations calculate each activity metric in the same way each year. Otherwise, EnPI(s) will be distorted. For this reason, records should be retained of calculations of activity metrics for each year.

More information on activity metrics (including on calculating TUFA and FTEs) (click on link):

- [Reporting Activity Metrics](#)
- [Calculating 'TUFA'](#)
- [Calculating 'FTE Employment'](#)
- [Calculating 'Population Served'](#)
- [Composite Activity Metrics](#)

6.2 Types of Energy (Fuel)

The following describes all of the energy types that can be entered into the reporting template.

DESCRIPTION OF ENERGY TYPES ACCEPTED BY THE MONITORING & REPORTING SYSTEM

Electricity

- *Imported Electricity* is typically purchased or 'imported' from the electricity network. Electricity can be generated from fossil or renewable sources and is sold in kilowatt-hours (kWh, commonly referred to as 'units'). Typical uses of electricity in the public sector include in buildings (lighting, heating, air-conditioning, ICT equipment, cooking) as well as for pumping, wastewater treatment, public lighting and some transport.
- *Onsite Generation*: Some public bodies also generate their own electricity onsite using either fuel-based generators which can run on either fossil or renewable fuels (e.g. including CHP plants) or non-fuel renewable energy systems (e.g. wind turbines, photovoltaic, hydro). *Note: if your organisation consumes fuel in a fuel-based generator (including CHP), then you report the consumption of the fuel only and not the consumption of the electricity.*
- *Offsite Charging of Electric Vehicles*: Electric vehicles can be charged at locations where the electricity supply is not included on the organisation's main electricity bills, e.g. on street charging stations or service station fast charging points. This consumption must be reported separately from Imported MPRN electricity.

Thermal Energy

- *Natural gas* is a naturally occurring fossil fuel that is composed mainly of methane. It is piped through a national gas transmission & distribution network (in gaseous form, under pressure) directly to end users in the industrial, power generation, services and domestic sectors. The network can be viewed here: www.bordgaisnetworks.ie/en-IE/About-Us/Our-network/Pipeline-Map/
- *LPG or liquefied petroleum gas* is manufactured in oil refining, crude oil stabilisation and natural gas processing plants. It consists of propane and/or butane gases. It is stored under pressure as a liquid in cylinders or bulk tanks and is delivered to end users in small cylinders (sold in kilograms (kg)) or in tankers from which it is transferred to bulk tanks onsite (sold in litres (l)). It is typically used in boilers (for space & water heating) and for cooking.
- *Biogas* is generated through the anaerobic digestion of organic materials such as food waste, agricultural waste and sewage sludge (a by-product of wastewater treatment). With EU regulations influencing the treatment of waste, increasing amounts of wastes are available as

DESCRIPTION OF ENERGY TYPES ACCEPTED BY THE MONITORING & REPORTING SYSTEM

- feedstocks for biogas production. Although *Landfill Gas* is a type of *Biogas*, its consumption should not be reported as *Biogas*; instead the electricity output from landfill gas plants should be reported under *Onsite Generation by Non-Fuel Renewables & Landfill Gas*.
- *Kerosene* is a type of heating oil. It is also known as *Paraffin* or *28-Second Heating Oil*. It is reddish in colour. It is typically used in boilers for space & water heating.
 - *Gasoil* is another type of heating oil, which is also known as *Marked Gasoil* or *Distillate* or *35-Second Heating Oil* or *Green Diesel* or *Marked Diesel*. It is dyed green in colour and is typically used in boilers for space & water heating. It is also used in generators, mobile plant, construction machinery, agricultural machinery and marine engines.
 - *Light, Medium & Heavy Fuel Oils* are a range of heavier, higher viscosity heating oils typically only used in very large 'industrial' boilers. The vast majority of heating oil used by public bodies is either *Kerosene* or *Gasoil*.
 - *Coal* or *Bituminous Coal* is used in some older solid fuel boilers for space and water heating as well as in open fires. It is sold by weight.
 - *Manufactured Ovoids* are a form of *Smokeless Coal* used in some older solid fuel boilers for space and water heating as well as in open fires. *Ovoids* are sold by weight. For the purposes on the Monitoring & Reporting System, this category also includes other *Smokeless Coals*.
 - *Sod Peat* is the turf that was traditionally used in Ireland. It is extracted from a bog in a roughly rectangular shape and air-dried before use. It is sold by weight and typically only used in open fires.
 - *Peat Briquettes* are a manufactured product made from compressed dried peat. They are typically used in open fires or small solid fuel boilers (e.g. in homes). They are sold in bales (1 bale = 12.5 kg = 0.0125 tonne).
 - *Milled Peat* is air dried peat in powder or crumb form. It is typically *only* used in power generating stations.
 - *Wood Chips* are a renewable fuel comprising small pieces of wood that can be used in boilers for space and water heating. They are sold by weight and can have moisture contents of between 30-60%, depending on the source of the chips and the duration and nature of their storage prior to use.
 - *Wood Pellets* are a manufactured product comprising wood shavings and sawdust that have been formed into pellets. They are sold by weight and typically used for heating in boilers and stoves.
 - *Wood Briquettes / Wood Logs* are typically used in some older solid fuel boilers for space and water heating as well as in open fires. *Wood briquettes* are a manufactured product made by compressing wood particles.
 - *District Heating* refers to systems for distributing heat through insulated pipes in the form of hot water (sometimes steam). The hot water is passed through heat exchangers to provide hot water and space heating in buildings. In the context of this Monitoring & Reporting system, public bodies only need to report the heat 'imported' by the organisation from an external district heating network and the heat 'exported' by the organisation to the external district heating network. District heat is measured in kilowatt-hours (kWh).
 - *(Active) Solar Thermal* systems capture solar heat and transfer it for either sanitary hot water production only (most common) or for both hot water production and space heating. Larger scale active solar thermal technologies can also be used for cooling and steam production.

DESCRIPTION OF ENERGY TYPES ACCEPTED BY THE MONITORING & REPORTING SYSTEM

For the purposes on the Monitoring & Reporting System, this category does not include passive solar heating.

Transport Energy

- *Road Diesel*, which is also known as Auto Diesel, White Diesel or DERV is used in nearly all diesel-engined road vehicles. It is clear in colour. Conventional specifications for Road Diesel include small quantities of blended biodiesel (about 4% in 2015).
- *Petrol*, which is also known as *Gasoline* or *Motor Gasoline* or *Motor Spirit* is used in nearly all petrol-engined road vehicles as well as in some mobile plant & equipment and some marine engines. It is clear in colour. Conventional specifications of Petrol include small quantities of blended bioethanol (about 4% in 2015).
- *Marked Diesel (Non-thermal Use)* is the same as Gasoil (see above). Note: only the consumption of marked diesel for non-thermal uses (i.e. for non-building consumption) is recorded under Marked Diesel (Non-thermal use), e.g. consumption in generators, mobile plant, construction machinery, agricultural machinery and marine engines. Thermal / building consumption of Marked Diesel is recorded under Gasoil in Thermal Fuels.
- *Aviation gasoline* or *AVGAS* is motor gasoline that has been processed especially for use in aviation reciprocating (piston) engines.
- *Jet A1 Kerosene* or *Jet Kero* or *Jet Fuel* or *Jet Kerosene* is used for aviation gas turbine engines (turbofans, turboprops & jets). It has particular specifications which are established by the International Air Transport Association (IATA).
- *Biodiesel* is a biofuel produced from vegetable or animal oils, of diesel quality. Examples include those based on *FAME (Fatty Acid Methyl Ester)* and derived from *Pure Plant Oil (PPO)*, *Used Cooking Oil (UCO)* and *tallow*. Biodiesels are typically consumed as part of a blended product with Road Diesel (the blend % can vary). Some vehicles run on pure biodiesel.
- *Bioethanol* is a biofuel produced from biomass and/or the biodegradable fraction of waste. Examples of bioethanol include ethanols produced from sugar beet, wheat, corn and sugar cane. Bioethanols are typically consumed as part of a blended product with Petrol. The percentage of the blend can vary. Some vehicles run on pure Bioethanol.

Other Energy

To simplify the reporting template, some less commonly used energy types have been deliberately omitted from the system. Public bodies that consume energy types not listed can use the 'Add Other Energy Type' function to record the consumption of 'non-standard' fuels.

More information on working out which types of energy you use (click on link):

- [Gathering Data: Which Types of Energy do we Use?](#)

6.3 Calculating Energy Consumption

Remember that the only instance in which you should have to work out your electricity or natural gas consumption is for the years 2001-2005 if you have selected the 2001-2005 baseline. Electricity and natural gas consumption data from 2006 onwards will be sourced directly from the regulated meter operators by SEAI using your MPRNs and GPRNs.

In general, your consumption data should be derived from either meters or bills:

- Meters record the quantity of energy that ‘passes through’ them. All electricity connections (except most public lighting) and all natural gas connections are metered. Some (but not all) heating oil tanks, bulk LPG tanks and onsite transport fuel tanks are metered. District heat connections are also typically metered. Remember:
 - Not all meters show consumption in the same units (even meters used for the same fuel type), so you should always note the metered units along with all readings.
 - Some meters require conversion factors to convert readings to meaningful units.
 - To work out the consumption over a period of time using a meter, you will need readings from the beginning and the end of the period and you should subtract the former from the latter to determine how much was used.
- All energy supplies that your organisation pays for are billed. Bills are a very useful source of consumption data as they *should* specify the quantity of energy provided (e.g. in litres, tonnes etc.) as well as the Euro amount. If your bills are not clear ask your supplier to issue you with clear, unambiguous bills. For fuels purchased in bulk (e.g. heating oils, LPG, solid fuels), bills can provide the basis for estimating the energy consumption in a year. However, the billed amount may not equal the amount you actually consumed in the period.

Other methods appropriate for specific energy types include tank dipping, fuel card systems and direct enquiries to your supplier(s). In some instances, your suppliers’ records may be better than yours! You should contact them and see what information they can provide. You should also incorporate obligations into future energy supply relationships to ensure that suppliers provide relevant, coherent data to you – to help you fulfil your reporting obligations.

More information on working out how much energy you use (click on link):

- [Gathering Data: How Much Energy do we Use?](#)

7 GUIDANCE & SUPPORT

NEED MORE INFORMATION?

M&R FAQ

There is additional detailed guidance material in the form of a comprehensive, searchable FAQ at www.seai.ie/Your_Business/Public_Sector/FAQ. This covers the scope, principles, methodologies and reporting requirements for all aspects of the M&R system. In the unlikely event that you have a query **that is not answered in this guide or in the detailed FAQ**:

- SEAI partners should contact their Partnership Support Manager (PSM);
- Non-partners should email mandr@seai.ie.

The FAQ will be updated continuously if new queries emerge, so you should thoroughly review the FAQ before submitting a question.

M&R User Guide

This guide provides step-by-step instructions on using the online system – including on reporting specific data items. It is available from [here](#).

Complimentary Training & Briefing Workshops

The SEAI is also running complimentary training workshops on the reporting process commencing in January 2017. To register for a workshop near you, please [click here](#).

Understanding Your Energy Consumption

SEAI's Energy Management Action Plan is an online tool which provides a step by step guide to creating a best practice action plan for energy management in organisations. Three of the twenty steps are particularly relevant for identifying and understanding energy consumption:

- Step 7: Identify total energy consumption and develop an energy baseline - <http://www.seai.ie/EnergyMAP/Identify/Step-7-Identify-total-energy-consumption-and-develop-an-energy-baseline/>
- Step 8: Survey energy use & identify significant energy users - <http://www.seai.ie/EnergyMAP/Identify/Step-8-Survey-energy-use-identify-significant-energy-users-//>
- Step 9: Identify factors that influence energy use and establish Energy Performance Indicators (EnPI's) - <http://www.seai.ie/EnergyMAP/Identify/Step-9-Identify-factors-that-influence-energy-use-establish-Energy-Performance-Indicators-EnPI-s/>

Improving your Energy Performance

SEAI has developed a range of integrated supports to help Public Sector organisations achieve valuable energy savings and work towards the ambitious targets 33% target. No matter where in the public service your organisation operates, SEAI can help you reduce energy usage, cut costs and benefit the environment. SEAI does not charge for these services. All we ask is for a genuine commitment to energy saving, which is vital to the success of your energy management efforts. The more committed an organisation is, the more SEAI can help, and the more meaningful the savings will be. For more information go to www.seai.ie/publicsector.

GLOSSARY

Activity Metric: An activity metric is a measure of the activity that an organisation undertakes. (In the simplistic example of a coffee stall, a good activity metric would be the number of cups of coffee sold in a year.) Unfortunately, good activity metrics are more difficult to define and calculate for large service based organisations. However, all organisations have some way of formally measuring their activity. For example, a common activity metric in the public sector is full time equivalent (FTE) employment.

Carbon Dioxide (CO₂): A compound of carbon and oxygen formed when carbon is burned. Carbon dioxide is one of the main greenhouse gases.

Combined Heat & Power (CHP): Combined heat and power (CHP) plants refers to plants which are designed to produce both heat and electricity. CHP plants may be auto-producer (generating for own use only) or third party owned selling electricity and heat on-site as well as exporting electricity to the grid.

Energy Performance Indicator (EnPI): An energy performance indicator is a way of measuring an organisation's energy performance. An EnPI is calculated by dividing the energy consumption by an activity metric.

ESB Meter Registration System Operator (MRSO): A 'ringfenced' function within ESB Networks responsible for the change of supplier process and the processing / aggregation of meter data required to support trading & settlement in the competitive electricity market.

Gas Networks Ireland: Gas Networks Ireland manages the register of all gas points across the country on behalf of all shippers and suppliers and is responsible for the change of shipper process, which enables natural gas customers to efficiently change from one natural gas supplier to another.

Gas Point Registration Number (GPRN): A unique reference number assigned to every gas point on the natural gas network.

Meter Point Reference Number (MPRN): A unique 11-digit number assigned to every single electricity connection and meter in the country.

National Energy Balance: An annual compilation and calculation of energy flows in Ireland – undertaken by the SEAI Energy Policy Statistical Support Unit.

National Energy Efficiency Action Plan (NEEAP): A major Government policy document that sets out Government plans and actions to achieve a target of 20% energy efficiency savings across the economy by 2020 and a 33% savings in the public sector by 2020.

National Public Sector Energy Database: A national database of energy consumption and performance data for the public sector being developed by the SEAI in collaboration with other strategic partners as part of the public sector monitoring and reporting system.

Normalised EnPI: An energy performance indicator that has been normalised by arbitrarily setting its baseline year value to 100 and by expressing values for subsequent years relative to 100 level.

Total Final Consumption (TFC): The energy used by public bodies – as recorded or measured at the boundary of the organisation.

Total Primary Energy Requirement (TPER): A measure of all of the energy consumed by the organisation which accounts for the energy that is consumed and/or lost beyond the boundary of the organisation – in energy transformation, transmission and distribution processes, e.g. electricity generation transmission and distribution.