Heat Network Billing Methods

Credit billing vs. pay-as-you-go

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Credit billing vs. pay-as-you-go (PAYG) billing

Across the heat network market, there are a multitude of metering and billing solutions available. Each of these will fall under one of two main methods for metering and billing - credit billing or pay-as-you-go (PAYG) billing. To help you decide on the best solution for your development, we explore the benefits and drawbacks of credit and PAYG solutions, to you, as the heat supplier, and to the customer, your residents.
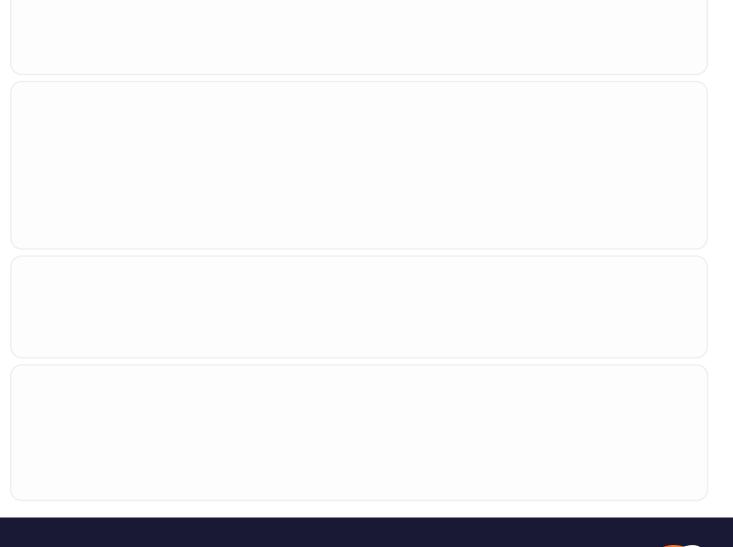
Credit billing

A metering & billing option that allows customers to use energy first and pay later. Customers are billed for their consumption on a monthly basis via paper or electronic bills.

Pay-as-you-go (PAYG) billing

A metering & billing option, also known as prepayment, that requires customers to pay for their energy prior to using it. Supply will terminate if residents' balance goes below £0.
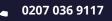
Credit billing	Pay-as-you-go (PAYG) billing

🔧 Installation

The main difference between credit billing and PAYG when it comes to installation is the requirement of a wired or wireless communication network.

Credit billing

Wired M-Bus

A heat network set up for credit billing commonly utilises a wired Meter-Bus (M-Bus) network. This communication protocol allows for remote readings of heat meters, providing accurate and automatic meter readings for billing purposes. The wired M-Bus links every property that has a heat meter installed with a central data collection system.

Easy to install in new builds

A wired M-Bus network is easily installed in new build developments during construction. Only in rare occasions could the building structure cause issues when it comes to installing it. If a wired M-Bus network is not available in existing buildings, credit billing could increase installation costs significantly.

Basic hardware

From a hardware perspective, credit billing has the more basic requirements. The individual meters, that link back to a central data collection system, remove the need for an in-home display (IHD), prepay shut-off valves on each individual heat interface unit (HIU), or other equipment typically needed for traditional PAYG systems.

Reduced set-up & replacement costs

This, in turn, results in lower installation and set-up costs. Less equipment means that there will be a lower asset replacement cost (RepEx) when the time comes.

Pay-as-you-go (PAYG) billing

Closed protocol

While some PAYG solutions can be connected to a wired M-Bus, there are some that work without. A mesh network, where data is obtained off-site using an encrypted zigbee network and back-up ADSL line or 4G router, and a SIM-based network, where data is obtained off-site using individual SIM cards in each meter, are both commonly used.

Easy to install in retrofits

Not having to install a wired network is recommended where metering systems need to be retrofitted, or where the building structure limits the ability to install a wired system. Wireless platforms can still be installed with a back-up wired network to enable a fully 'open protocol' option.
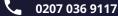
Additional hardware required

PAYG commonly requires a higher amount of equipment, such as an IHD and prepay shut-off valve that enables remote disconnection of the property's heat supply.

Increased set-up & replacement costs

The extra equipment results in higher capital expenditure (CapEx) and set-up costs compared to credit billing. Digital innovation in the industry has helped to bring down these costs. Solutions, such as KURVE, reduce the amount of hardware required in both the plant room and residential units, which could lower CapEx by 60% compared to traditional PAYG systems.

🕐 Ongoing management

While credit billing has traditionally been open protocol and more easily transferable, many PAYG solutions are heading in the same direction.

Credit billing

Open protocol

The data used for credit billing is collected from each connected meter into a central data logger. It is then taken off-site via an Automatic Meter Reading (AMR) system. Anyone, including another metering company or heat supplier, can usually access a system like this, making it open protocol.

Easily transferable

No SaaS fees

In addition to this, credit billed metering systems are more often than not easily transferable. With data passing through an open protocol, ongoing, long-term licenses, known as Software-as-a-Service (SaaS), are not required from the manufacturer or data host. As a result, switching billing providers while maintaining the same technology is easily done, and does not require a purchase of data from the old one.

Difficult to monitor performance

To allow for switching between credit billing and PAYG, credit billing may sometimes be offered through a PAYG solution. In these rare cases, SaaS fees would be payable and are passed down to residents within their daily standing charge as part of their bills.

Additional costs to switch between PAYG and credit

While it is easy to transfer the data, only limited data is collected by credit billed systems. This can make it difficult to monitor the performance of a heat network. Opportunities to increase the efficiency of heat networks are more easily missed, which could result in higher operational expenditure (OpEx). Data analytics are available for some credit billing solutions, although they do not tend to be as advanced.

Pay-as-you-go (PAYG) billing

Closed protocol

Difficult to make fully transferable

PAYG systems are typically closed protocol, with heat interface units (HIUs) having in-built metering and billing infrastructure and software that can only be accessed by the supplier. This makes it more difficult to make the system 100% transferable, with heat suppliers being 'locked in' to their services. This is now changing with several PAYG providers moving to open or transferable protocol systems, enabling simpler switching of metering and billing.

Ongoing long-term SaaS fees

Once a PAYG solution is installed however, ongoing long-term licenses are required from the manufacturer or data host in order to operate or transfer the use of the installed system. These licences are often referred to as Software-as-a-Service (SaaS) and have associated fees that do have an impact on the end price residents pay for access to and use of heat.

Data collection to help with monitoring

Easy to switch between PAYG and credit

Where PAYG systems can reduce operational costs is through the increased access to more granular data. Many providers offer data analytics as well as billing, empowering heat suppliers to perform remote monitoring and management of their heat network. As a result of new intelligence, opportunities to increase heat network performance are more easily identified, increasing efficiencies. This can lead to more accurate end-customer tariffs too.

🐷 Debt risk

The presence of a prepayment valve and consumption metrics for residents makes debt management significantly easier for PAYG compared to credit billing.

Credit billing

No means to terminate supply to encourage payment

Debt risk is one of the biggest considerations when it comes to selecting a metering and billing solution. Credit billing is notorious for the challenge it presents to heat suppliers in the collection of funds from customers. This is predominantly due to the absence of any means by which to terminate supply following non-payment.

Legal requirements to follow credit control procedures

Instead, billing agents must follow credit control procedures, which not all billing agents provide, to encourage customers to pay their energy bills. This usually involves sending reminder letters, increasing administration costs, and could lead to potential enforcement or legal action.

Increased potential to shortfall of funds

Where customers fail to pay their monthly bills, the heat supplier is left with a shortfall in funds and potential cash flow issues, affecting their ability to cover the incoming fuel bill. There are several underlying causes for debt on credit billed accounts, not all relating to residents being unable to or refusing to pay. In the buy-to-rent market, for example, the billing provider may not be kept informed of changes in tenancy resulting in incorrect names on bills, which are then not paid.

Pay-as-you-go (PAYG) billing

Supply terminates in event of non-payment

The most notable benefit of PAYG, is its ability to manage and significantly reduce debt risk. While credit billing payments are made in arrears, PAYG requires upfront payments which afford heat suppliers advance funds towards their costs. If a customer fails to top up their account and they fall into a negative balance, the prepay valves in their property will automatically shut until they top-up their account into a positive balance. This is commonly referred to as self-termination or self-disconnection.

Advanced funds towards heat suppliers' costs

By putting customers in charge of their usage, PAYG provides heat suppliers with peace of mind that costs will be recovered in line with budget. In turn, customers feel they have greater control of their finances, purchasing heat incrementally. Most PAYG systems allow for switching between PAYG and credit mode, providing greater flexibility for end-customer management and termination of supply, alongside convenient features which automatically recover debt over agreed and affordable time periods.

Additional credit control procedures might be required

Whilst PAYG solutions allow heat suppliers to practically eliminate heat debt risk, the daily standing charge can still continue to accrue even when a customer's energy supply has been disconnected. As a result, some additional credit control procedures might be required in certain instances.

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✦ Customer benefits

Depending on the metering and billing provider, a variety of payment methods can be offered to customers on either credit billing or PAYG.

Credit billing

Standard payment methods available

On credit billing, standard payment methods are commonplace. This often includes variable or fixed Direct Debits, online payments and standing orders. For those who prefer to pay in person, there's the option to pay bills with cash or card at a Post Office or other supported shop.

No real time account management

Retrospective spending information

With data passing through an open protocol without Software-as-a-Service (SaaS) licensing, the data collected is often limited in credit billed systems. This means that information on energy consumption available to residents is often restricted to summarised meter readings. Additionally, an in-home display (IHD) is not a requirement for units on credit billing, meaning that residents do not get any real time account management and only have access to retrospective spending information.

Monthly consumption data

While heat network metering and billing providers are looking to expand the information provided to residents and give a clearer indication of how much energy was consumed in a given period, without an IHD, this information can only be given on monthly bills. Residents as a result only see their consumption usage days, or even weeks, after using the energy making it difficult to retrospectively make environmentally conscious decisions.

Pay-as-you-go (PAYG) billing

More payment methods available

Traditionally, PAYG could only be topped up with a key or card at a local shop. These times have long gone, and PAYG customers typically have a multitude of options available to them. This may include the ability to pay via an app, over the phone, via SMS or in person at specific outlets, like PayPoint.

Real-time account management

One of the key benefits of PAYG is the promotion of energy awareness. Giving customers a platform via which they can view their energy consumption and resultant costs engages them, making them more likely to exhibit environmentally conscious behaviours.

Scope to change consumption behaviour

Whether through an IHD or web-app, PAYG displays give customers easy access to their energy account, and this can decrease consumption by up to 28%. A push towards digitalisation has furthered the functionalities available with some solutions allowing residents to manage their account from any place at any time.

Consumption data available at all times

Most PAYG systems collect data every hour, with some even collecting it every 30 minutes. This real-time data has allowed residents to quickly react when their spending is higher than usual. More and more IHDs now also allow the connection of multiple utilities such as cooling, potable water and electricity. Managing all utilities in one place is another convenience factor that is growing in importance for customers.

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Insite Energy's solutions

Wanting to create choice within the heat network metering and billing market, Insite Energy was established at the end of 2009. Since, we have had the successful field trial of the first Guru Systems with Insite Energy in 2013, integrated Secure Meters into our offering, and launched KURVE, a joint venture with SAV Systems.

	KURVE	GURU HUB II	SECURE	CREDIT
Communication Network	Wired	Wireless	Wireless	Wired
Wiring Topology	STAR M-Bus	Zigbee Mesh	SIM	Various options
Data Frequency	Hourly	Half-hourly	Daily	Daily-Monthly
Multi-Utility	✓	✓	✗	✗
Data/Analytics	✓	✓	✓	?
Eliminates Debt Risk	✓	✓	✓	✗
In Home Display	✗	✓	✓	✗
Full Colour Touch Screen	✓	✓	✗	✗
Accessible on-the-go	✓	✗	✗	✗
Displays Debt Balance	✓	✓	✗	✓
Visibility of Consumption	✓	✓	✓	✗
Multiple Payment Methods	✓	✓	✓	✓
Credit Mode Available	✓	✓	✓	✓
Warranty Provided	✓	✓	✓	✓
Install Complexity	Low	High	Medium	Low
CAPEX/Upfront Costs	££	££££	£££	£
OPEX/Maintenance	£	££	££	£
Transferable	>1000 units	✓	✓	✓

Credit billing and PAYG solutions each come with their own benefits. The most appropriate solution will vary depending on the specific site and heat supplier requirements.

PAYG's ability to mitigate debt risk is a clear benefit for most heat suppliers, however developers can be put off by the high capital cost that comes with installing it. New build developments usually have the flexibility to choose the best suited credit or PAYG solution for the scheme, however where retrofitting is necessary, PAYG is the preferred choice due to many solutions working on wireless networks, allowing for an easier installation compared to wired credit billing solutions.

Whatever your needs, Insite Energy has a wide portfolio and will work with you as a trusted advisor to determine the best solution for your scheme.

About Insite Energy

We are a national heat network metering, billing and maintenance service provider with over ten years of experience across the UK. Our specialist services are available to heat network operators, including managing agents, developers, housing associations and contractors.

Insite Energy is accredited with ISO 9001, CHAS, FCA and is compliant with the Heat Trust.
We are also active members of the ADE, UKDEA, HNIC, ARMA, UKAA and The Housing Forum.

1 On-Site Services

2 Mobilisation & Onboarding

3 Metering, billing, Customer Service and Maintenance

To find out how Insite Energy can provide your heat network services, get in touch:

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