



**Welcome to the
AEE Ireland Webinar**

Presented by:
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Sisk Energy Manager

AEE Webinar Construction Energy Management

John Sisk & Son



Established 1859

Agenda

- Objectives
- Energy Consumption in Construction
- Construction Process
 - Site Compound Energy Use
 - Plant Energy Efficiency
 - Temporary Electrics
- The Future

John Sisk & Son

Building Excellence for 160 years



Objectives

- Raise awareness
- Stimulate a discussion
- Transform construction energy management from a linear to circular economy

www.designingbuildings.co.uk › wiki › Energy_manag... ▼

Energy management and building controls - Designing ...

Energy management and **building** controls. In April 2016, BRE and the Energy Services and Technology Association (ESTA) published a Briefing Paper: Energy ...

www.bresmartsite.com › how-we-help › energy-manag... ▼

Construction site Energy Management | SmartSite ...

With information reported on a weekly or monthly basis, the **Energy** module allows you to understand exactly what you are using against plan, and set and monitor reduction targets to deliver both environmental benefits and cost savings. Record electricity, natural gas and fuel usage across your projects.

www.itcarlow.ie › courses › type › built-environment-e... ▼

IT Carlow | Construction - Facilities and Energy Management ...

Bachelor of Science (Honours) in **Construction - Facilities and Building Services Management** (FBS) CW438. CAO Entry: NFQ Level 8; Course Code: CW438 ...

www.dkit.ie › Courses at DkIT › School of Engineering ▼

Certificate in Building Energy Management / Built Environment ...

Boost your career and learn the fundamentals of low energy building design and management with this 12-week **Building Energy Management** Course at DkIT.

www.ctc-n.org › technologies › building-energy-mana... ▼

Building Energy Management Systems (BEMS) | Climate ...

A **building energy management** system (BEMS) is a sophisticated method to monitor and control the building's energy needs. Next to energy management, the ...

 Agriland

Using wool in construction: Proposals put forward 'will be

...

Using wool in construction: Proposals put forward 'will be considered' ... Welsh Minister for Environment, Energy and Rural Affairs, Lesley Griffiths, ... that Welsh government's own facilities management team has committed ... 20 hours ago



 Fingal Independent

New €11m Lidl in Lusk set to create 35 new jobs

... jobs and 100 more indirectly over the course of the construction period. ... including a certified Energy Management System, high performing ... 3 days ago



 RTE.ie

Project managers appointed to Limerick's Opera site

It will be developed to LEED Gold and Nearly Zero Energy Building standards and is fully funded thanks to commitments from the European ... 3 weeks ago



 Offaly Express

'One of the biggest in the EU' - Contracts signed for Offaly

...

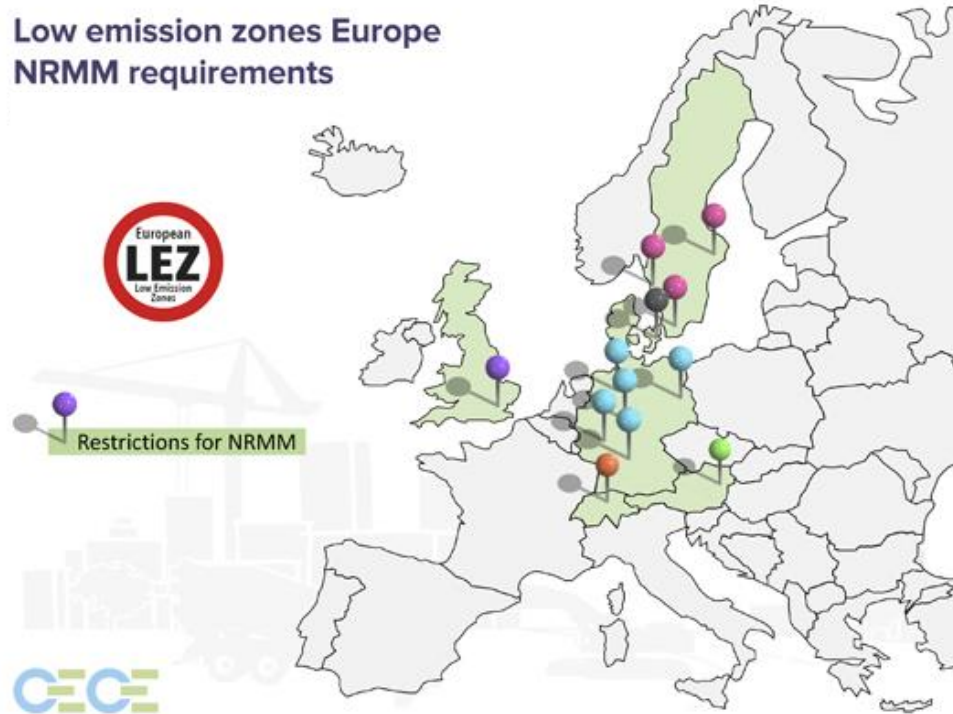
Construction is currently underway on the two energy storage sites at ... market and providing all regulatory and risk-management solutions for ... 1 week ago



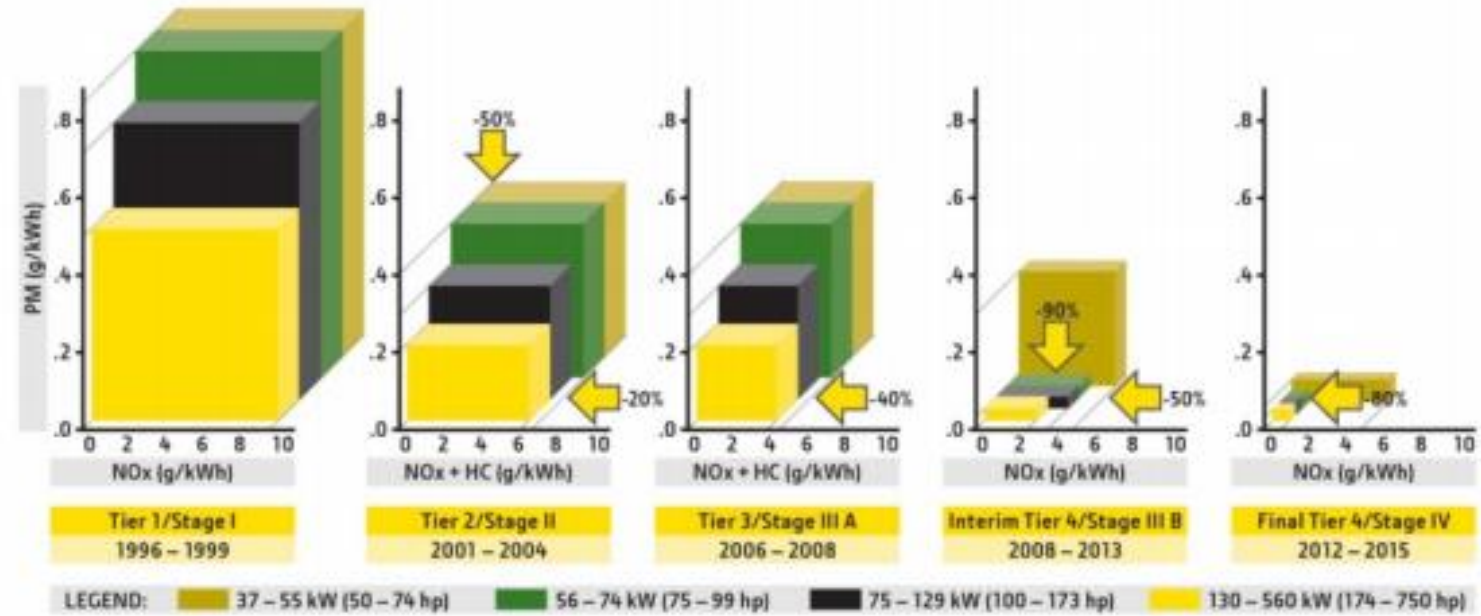
Google search results for “Construction Energy Management”

Objectives

Low emission zones Europe
NRMM requirements



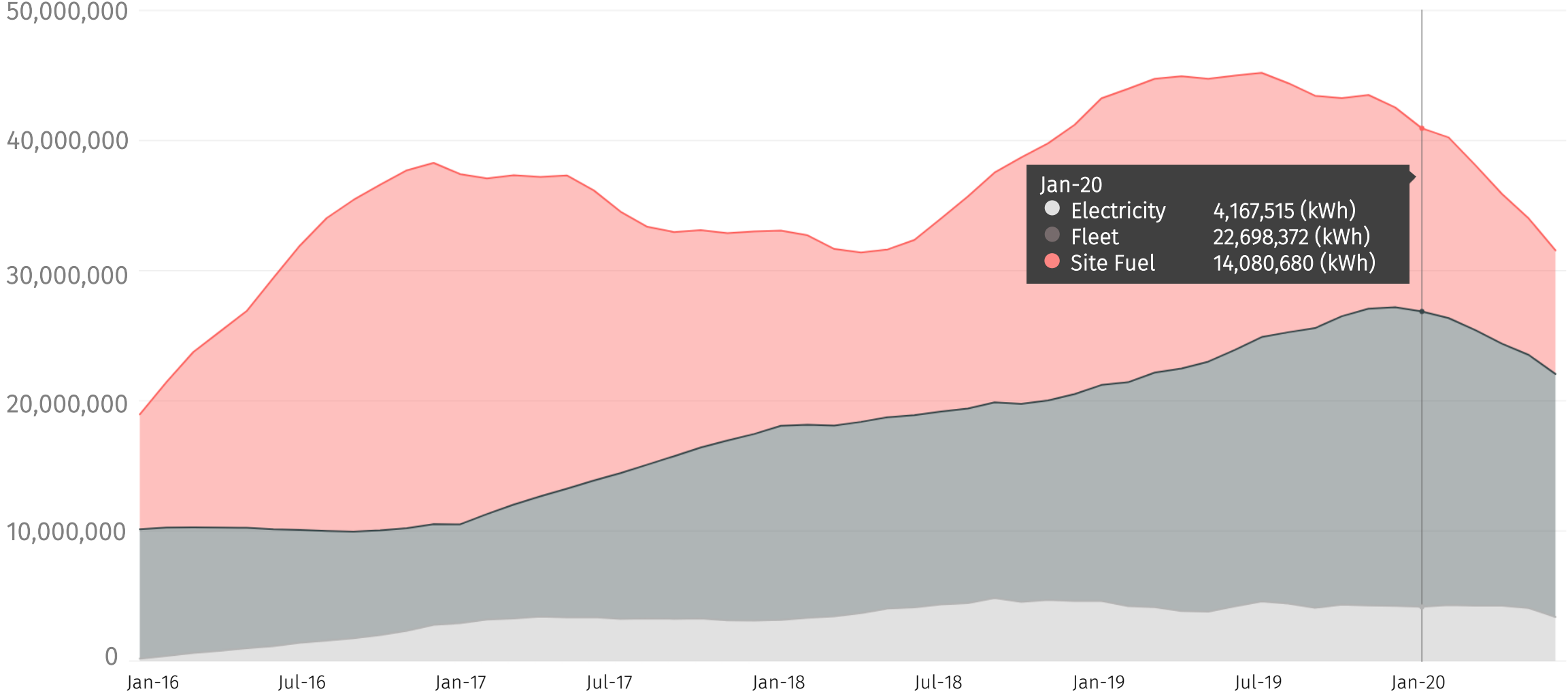
EPA and EU nonroad emissions regulations: 37 – 560 kW (50 – 750 hp)



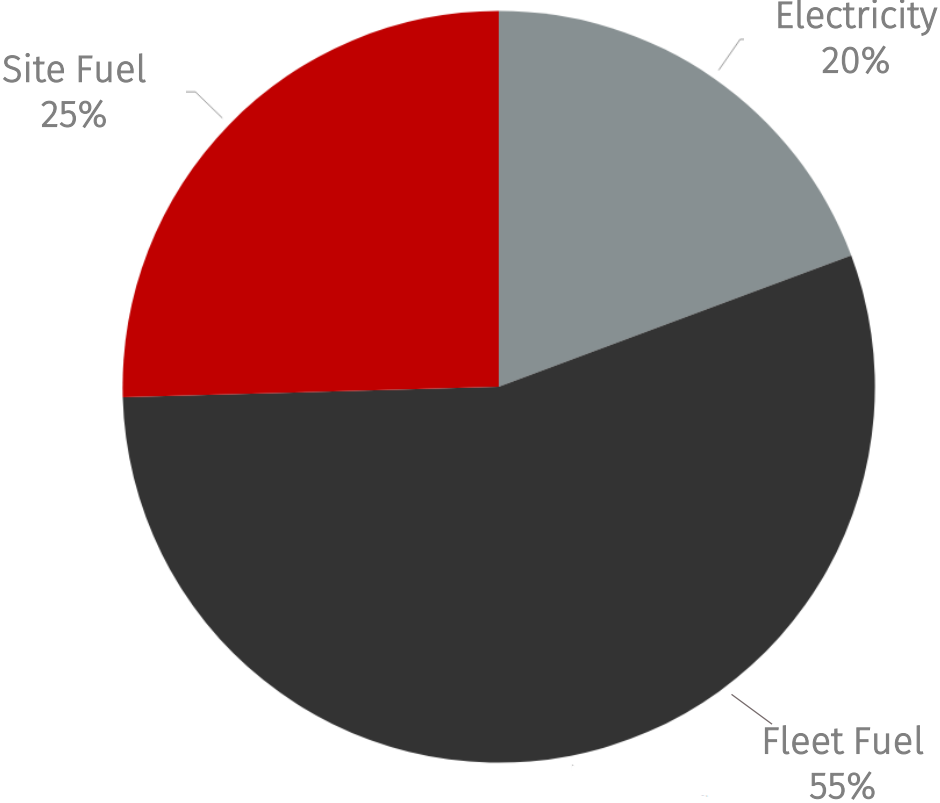
Energy Consumption in Construction



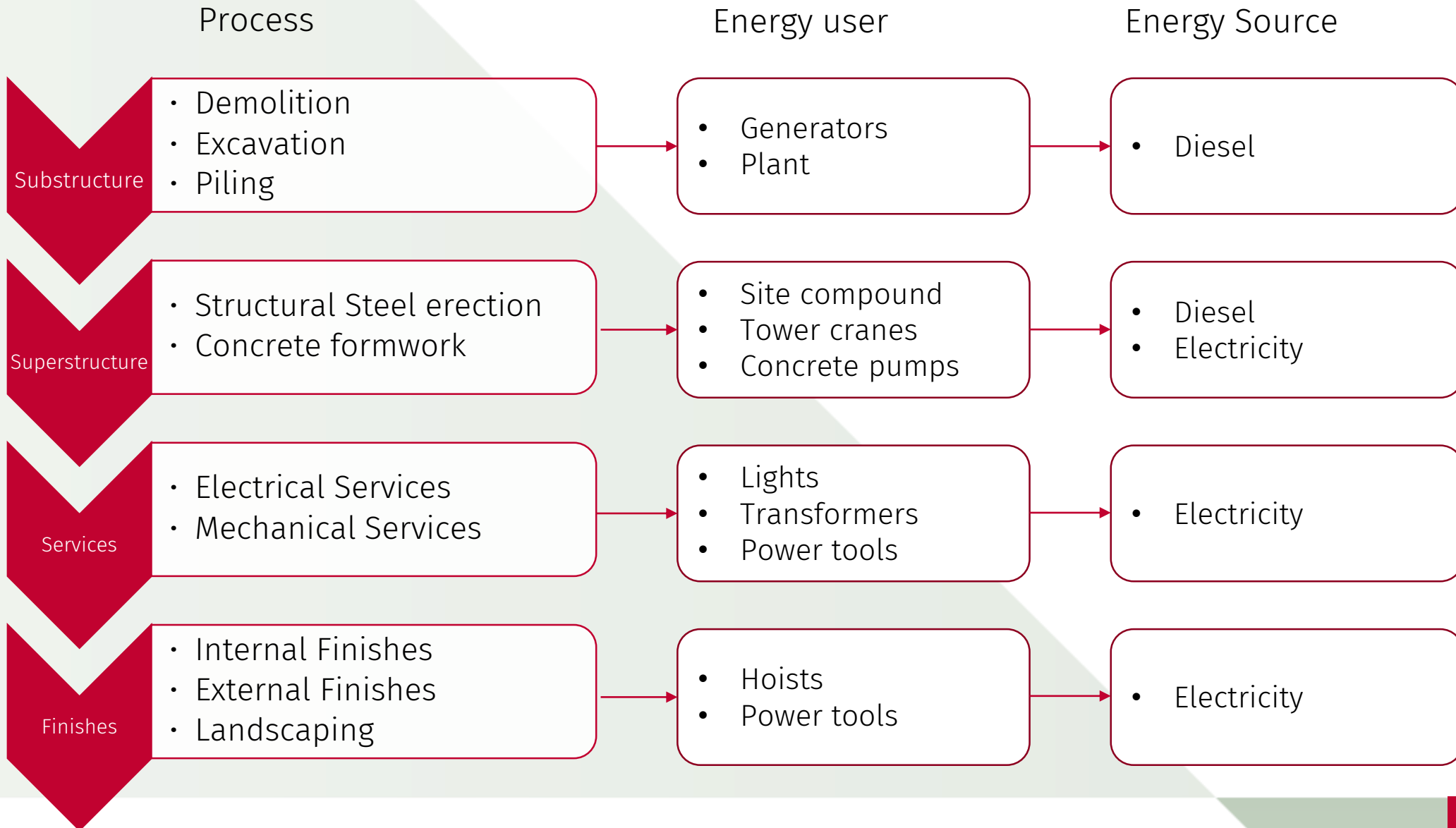
Rolling 12 Month Energy Consumption



Energy Consumption in Construction



Construction Process

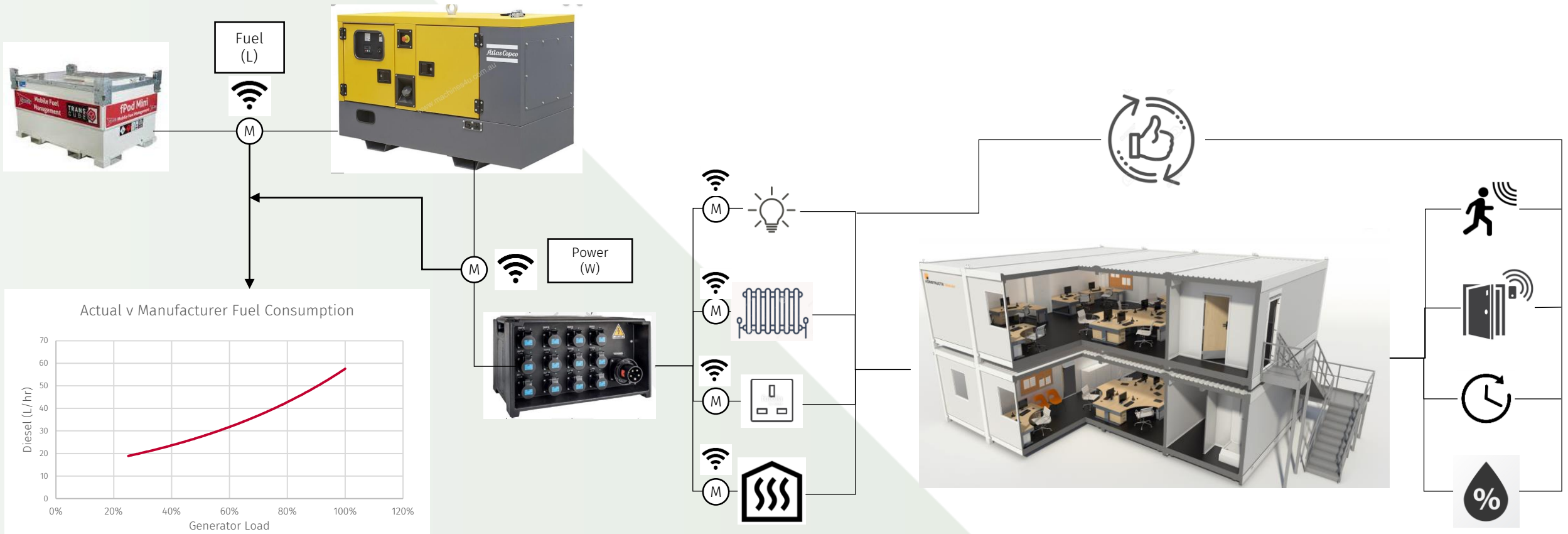


Site Accommodation



- Requests mains connection at earliest opportunity
- Generator sizing
- Generator fuel measurement
- Site compound power management

Site Accommodation



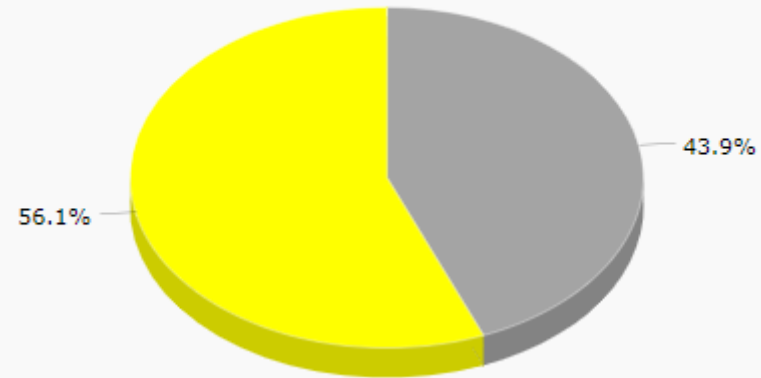
Groundworks


Loadall 540/170



VIN : JCB5AF2GCK2788746
Serial : 2788746

Working / Idle Time Split



 Engine Run: 39.2 hrs

 Fuel Used: 160.5 litres

 Fuel Consumption: 4.1 litres / hour

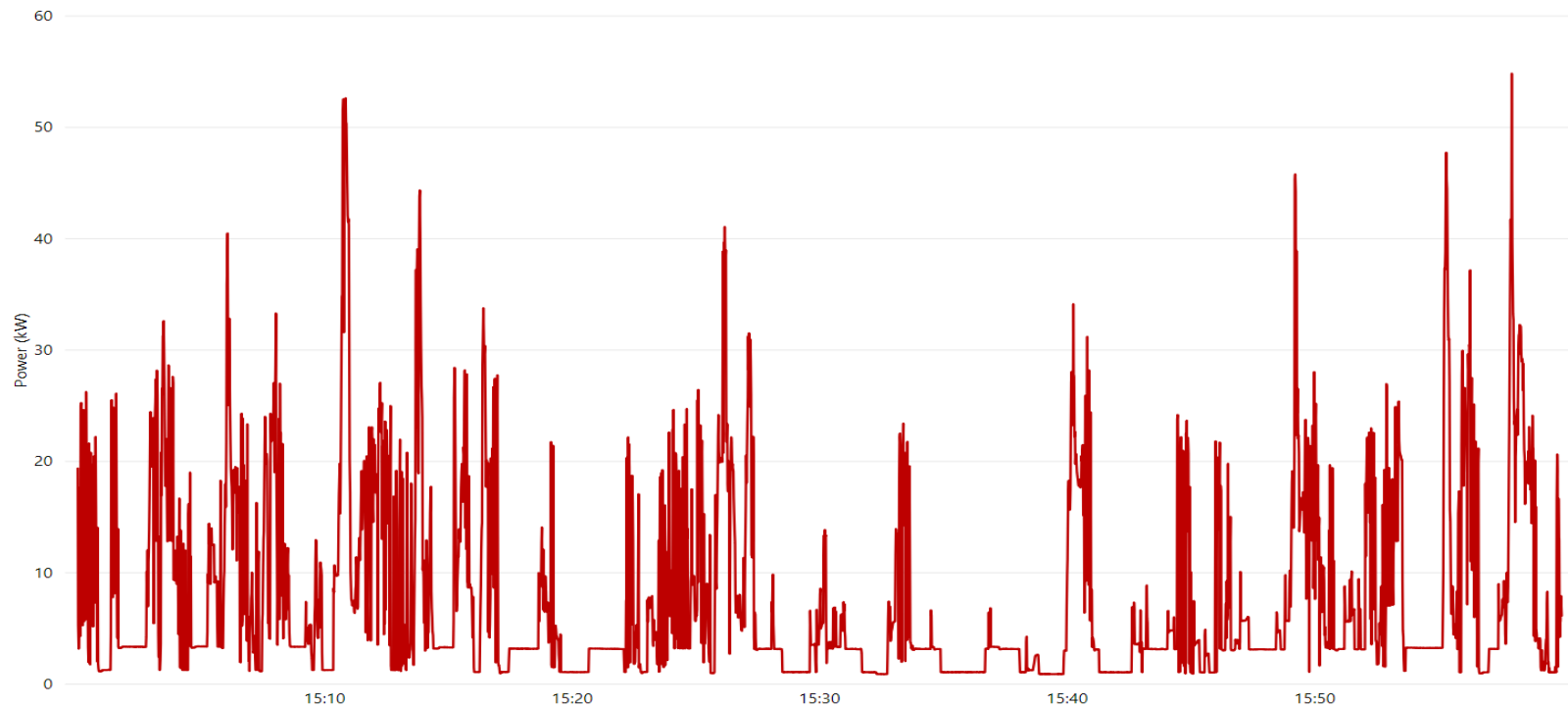
Structure

Tower Cranes

- Max Load – 60+ kVA
- Operates at less than 5kW 90% of the time
- Costs
 - Generator Hire
 - Diesel
 - Grid Connection
 - Standing charges

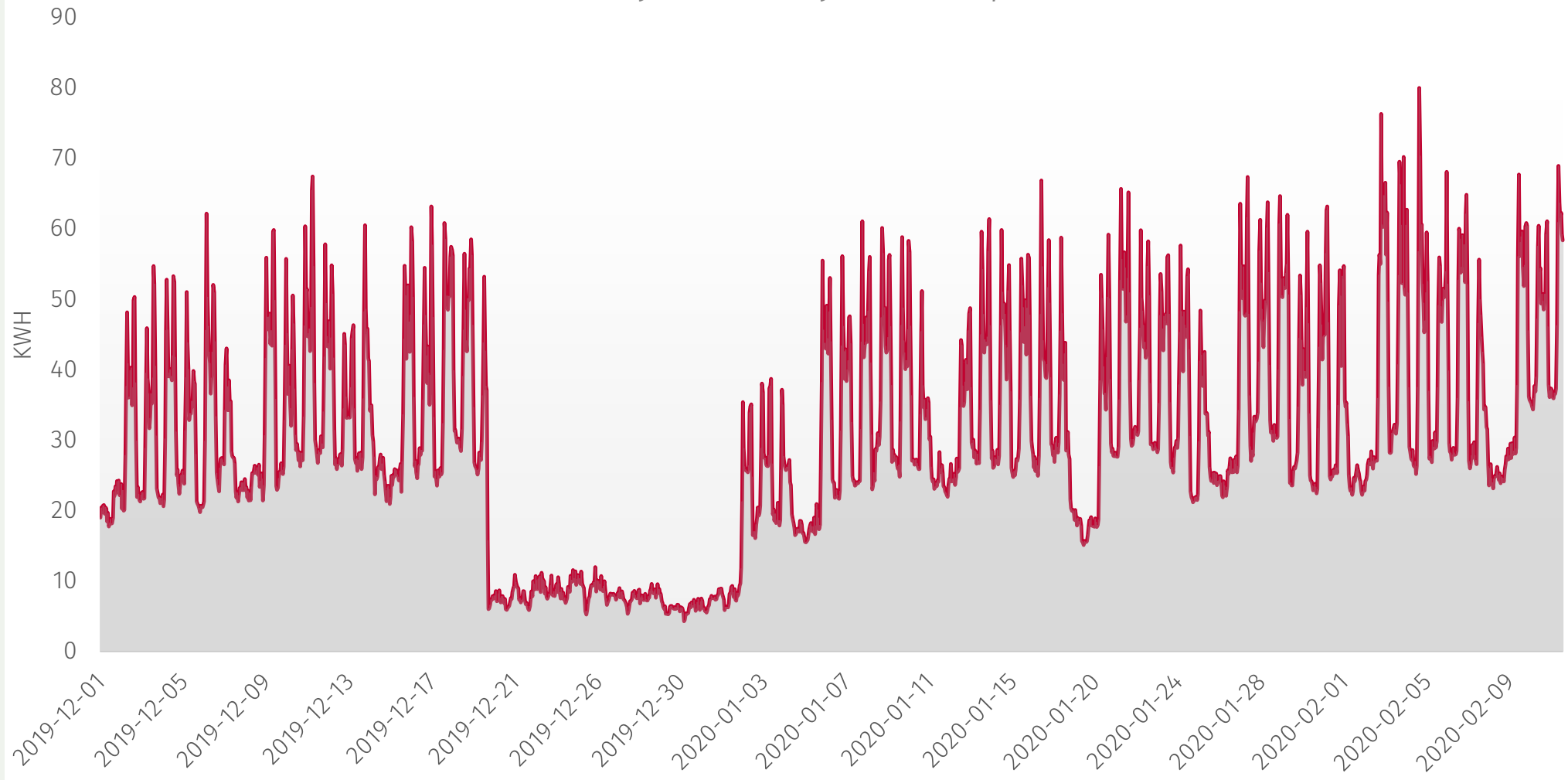


Tower Crane Power Consumption 29/01/2020 3pm - 4pm

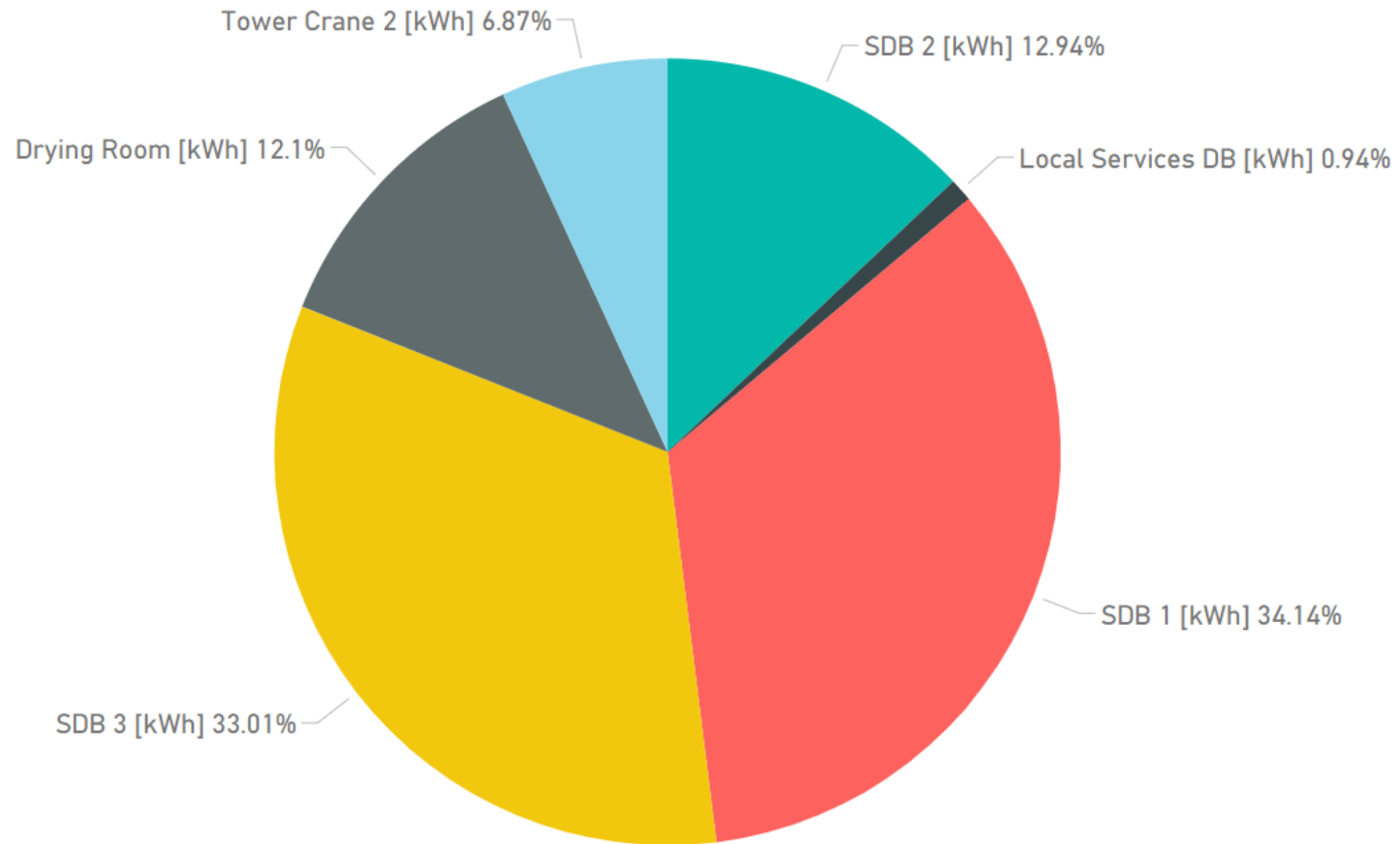


Site Power

Hourly Electricity Consumption



Site Power



Site Power

Why are transformers used?

- legislation requires we provide protection to workers
- 110V that transformers provide is safer
- Used in UK & Ireland but not in Europe

How do they waste energy?

- No-load losses occur in the transformer core due to hysteresis
- Losses are present continuously while connected to mains (24/7)
- Losses are proportional to the transformer capacity

How are transformer losses eliminated?

- Half losses by using 5 kVA transformers
- LED's and battery operated tools means less power is required



10kVA, 230V to 110V Transformer

The Future

- Circular economy & collective responsibility
- Electrification – Batteries
- Demand controlled energy use
- Solar power
- Hydrogen



Thank you and Stay Safe

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