



## 2021/22 Q3 Energy Performance Review

**A TRADITION OF  
INDEPENDENT  
THINKING**



**University College Cork, Ireland**  
Coláiste na hOllscoile Corcaigh

# Energy Performance Review Q3 21/22

1. Summary of Q3 Energy Performance.
2. Energy Projects / Audit / NC Updates.
3. Update from WGB \_BHSC.
4. Energy Security & Procurement
5. AOB

# Q 3 21/22 Energy Performance



Scope	2021/22 Q3	2018/19 Baseline
Electrical GWh	4.6	4.8
Gas GWh	3.1	3.7
Total	7.7	8.5

# 21/22 Electrical Performance Statement

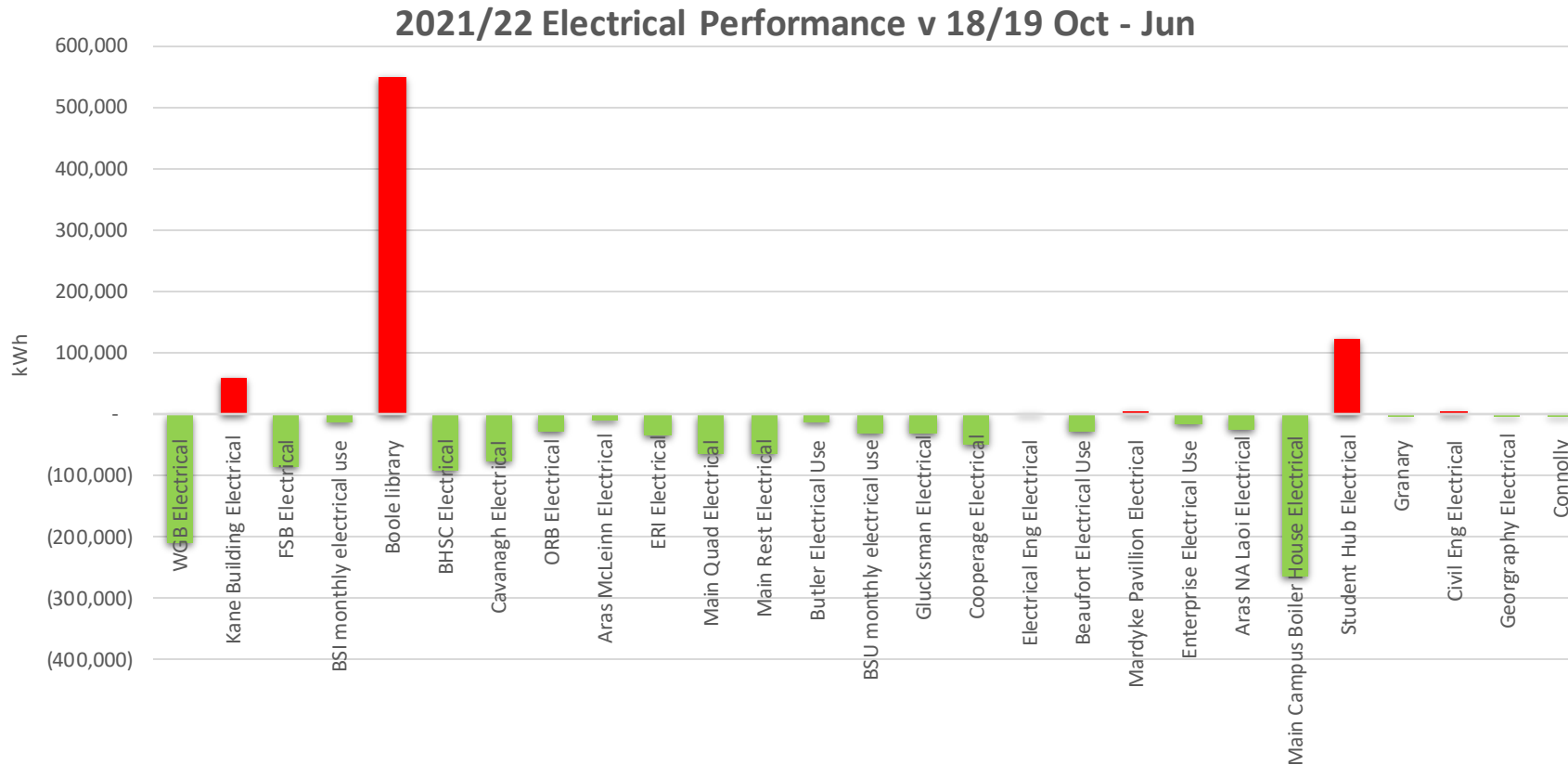


Scope	21/22 YTD	20/21	19/20	18/19 Baseline
Electrical GWh	14.8	13.0	13.3	15.34
Cost (€ mill)	€2.07	€1.88	€1.66	€1.77

Electrical Use forecasted 21,980,000 kWh

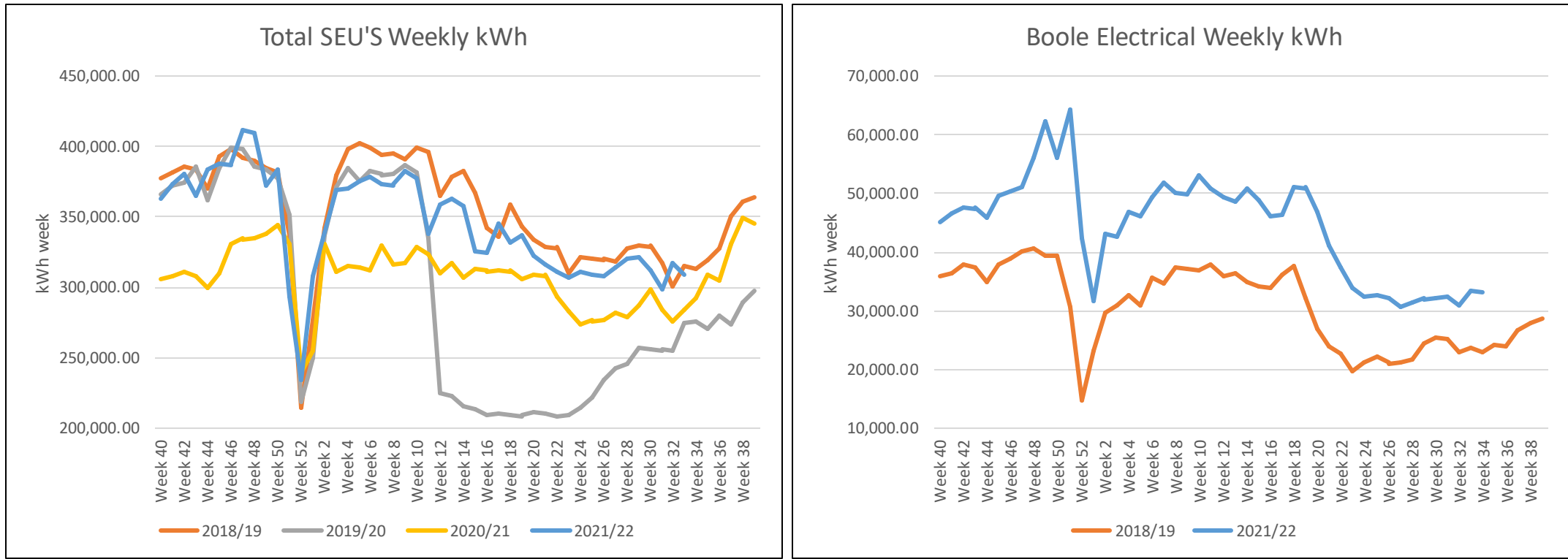
# 21/22 SEU Electrical Energy YTD

(94% of UCC account)

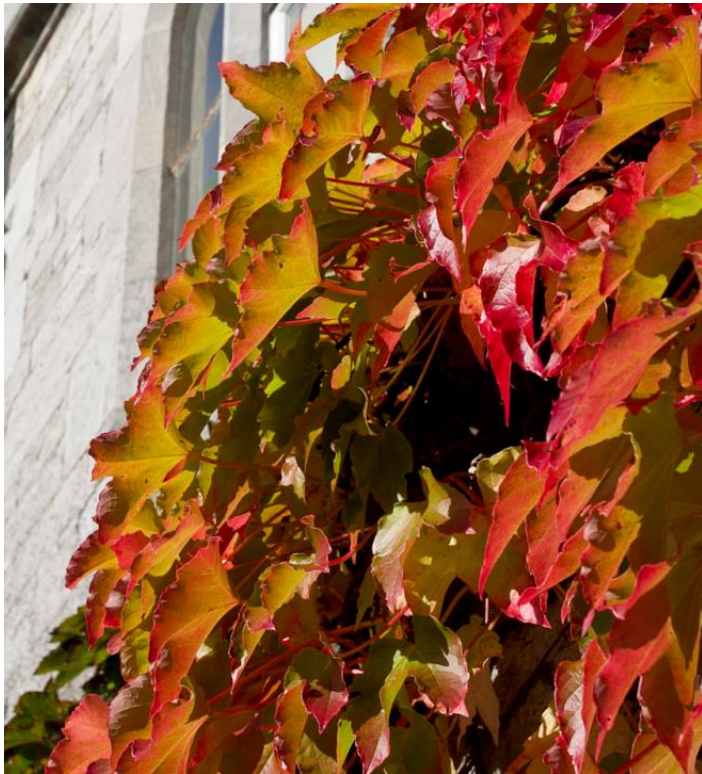


- Slightly above forecast.
- WGB running below.
- Boole / Kane running above baseline period.
- Research Intensity. – Kane example – 260,000 kWh added in ULV ( operating at 20-25% capacity.)
  - 2666 kW/m<sup>2</sup>
  - Average Research space 600-1000 kW/m<sup>2</sup>

# Current Electrical Performance – 94% of UCC's Electrical Use



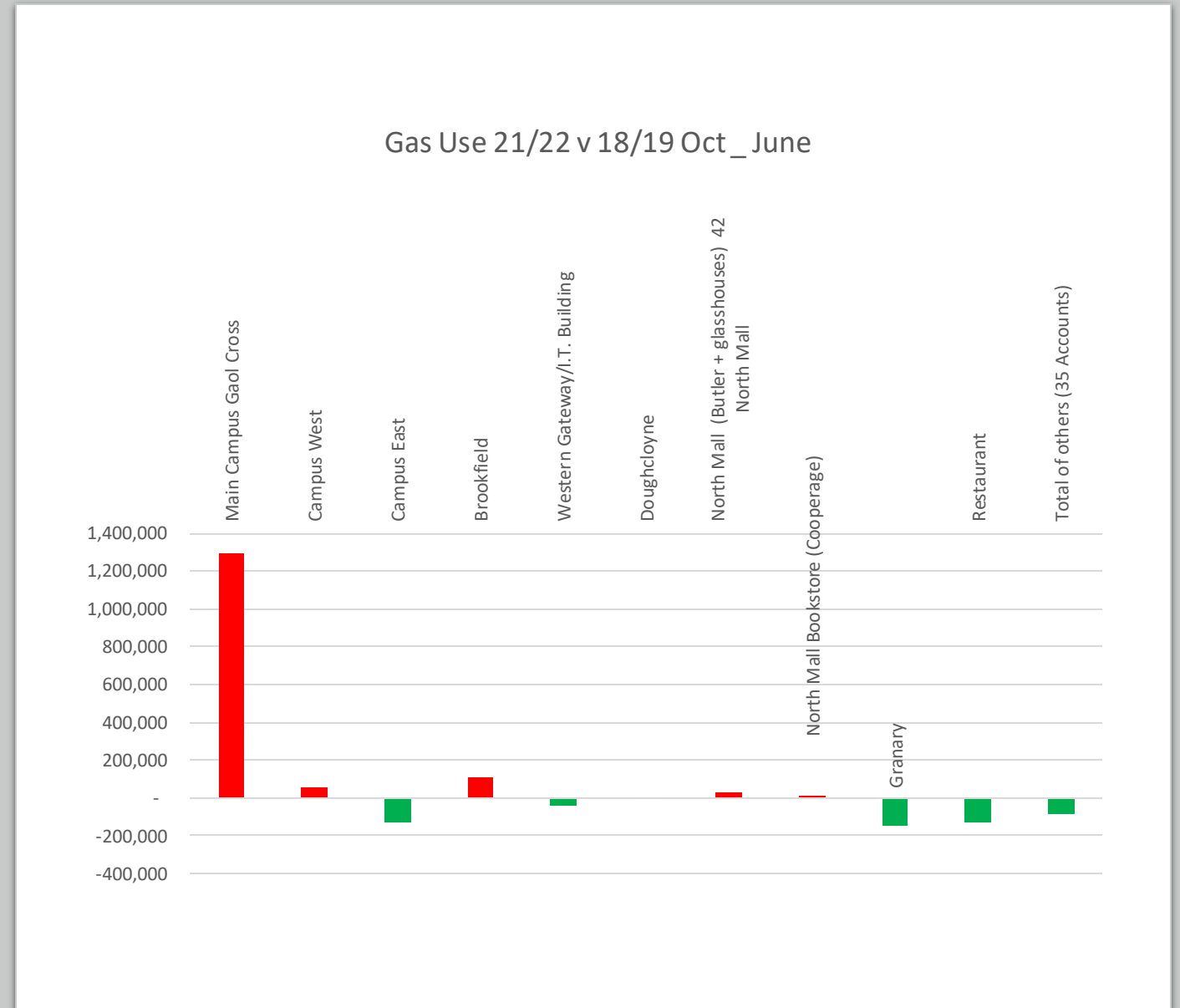
# 21/22 Gas Performance Statement



Scope	21/22 YTD	20/21	19/20	18/19 Baseline
Gas GWh	18.9	21.6	17.3	17.6
No of HDD	1472	1925	1829	1694
kW / HDD	12,830	11,224	9,455	10,387
Cost	€995,000	€945,000	€785,000	€ 902,000

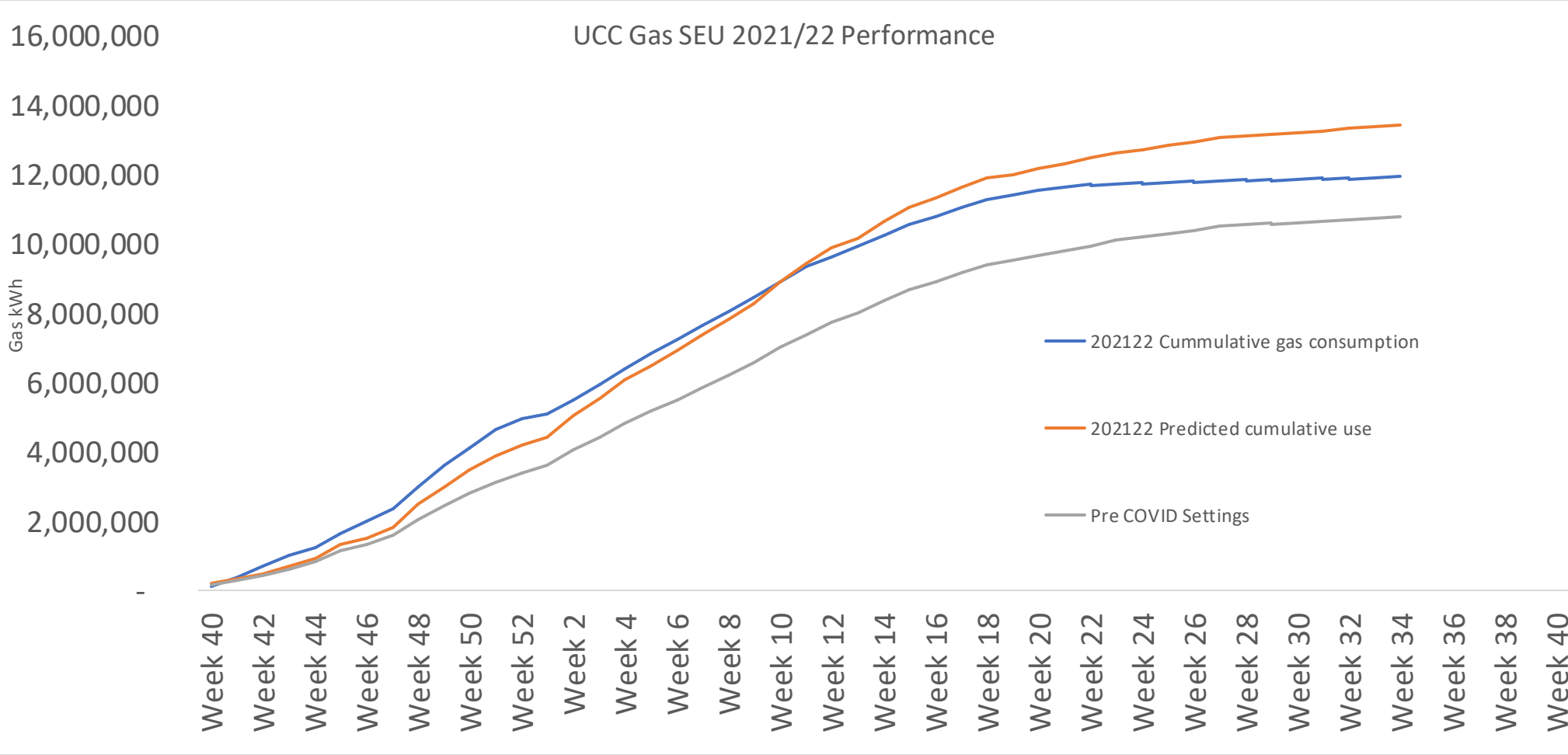
# 21/22 SEU Gas Use YTD

- Majority of heating systems off since late April.
- Summer use – DHW / Catering and Process controls.





# Current Gas Performance – SEU's



# Energy Projects 21/22

Projects Planned	Projects Complete	Annual Savings kWh	Savings this year kWh	% Reduction
13	22	660,000	220,000	1.7

# Energy Projects 22/23 forecast

Projects Planned	Projects Complete	Annual Savings kWh	Savings reporting year kWh	% Reduction
5	0	2,086,000	300,000	5.4

# Electrical Energy Projects Update

## Lighting Upgrades:

- ~~Boole emergency exits.~~
- Boole lecture hall & PC labs / Pharmacy / Kane Lecture .
- Glasshouse lighting upgrades.
- WGB Atria presence / lux control.
- ~~CB rooms — Elderwood plus others~~
- ~~New — BHSC Corridor LED replacement — 42,000 kWh savings~~
- ~~Total YTD — 85,000 kWh reduction in lighting.~~
- Flood lighting for Arena / Farm.

## HVAC:

- Ventilation upgrades / install (Civil Eng / West Wing / Connolly / ORB).- **majority complete.**
- Boole Heat Recovery.- @ Design – Summer 23- BEC grant.
- Glucksman GSHP- Construction stage.
- ERI GSHP- 2023
- ORB ASHP- Year 2 M&V stage
- FSB Technicians AHU
- ORB Basement / PC labs
- Filter / HVAC Contract.
- Pharmacy Fumehood Sash Reduction complete

## Audits:

- Appointment of Powertherm under EEOS to complete Technical Audits of SEU's.-
- BHSC Audit Complete Q1.
- Boole & WGB complete Q2
- CAUL / Arena / Student Centre Q3 complete
- Internal Audit scheduled Sept:
- Minor Works.
- Capital Projects.

## Controls / Metering:

- ERI tendering- Hold – 110K.
- Glucksman / Boole BMS Tender. – PO's issued.
- Block A FSB BMS replacement.- Commissioning
- ResourceKraft - Metering validation / platform expansion.
- Cooperage – awarded
- BSI - Migration and upgrade complete.

## Renewables

- PV Tender exercise for pay as you generate model.
- ORB – Failed panels taken off line.

## Capital Projects

- Enterprise Deep Retrofit.
- Mardyke Squad Room.
- CUBs
- Tyndall

# Gas Projects Update

## Equipment:

- ERI GSHP replacement – .2023
- Glucksman GSHP replacement- **Construction.**
- Block A Food Science replacement. - **Commissioning**
- ORB ASHP completion.- **M&V**
- **Glasshouses – replacement.**
- **No 6 Carrigside – Electrical heating.- near completion.**

## Audits:

- Appointment of Powertherm under EEOS to complete Technical Audits of SEU's.
- Roadmap for decarbonisation of heating systems.
- St Vincents.
- Butler

## Controls / Metering:

- Continue to optimise systems to run at 50-55 degrees.
- ResourceKraft - Metering validation / platform expansion- Steam meters validated.
- Main Rest & St Vincents, added.
- **PO's to GNI placed for:**
  - **Enterprise.**
  - **Beaufort**
  - **Distillery House.**
  - **Bloomfield.**

## Projects

- **Boole Heat Recovery Project.**
- **House electrification – new.**
- **Pharmacy ASHP**
- **BHSC ASHP**
- **Kane Immersion**
- **Butler Glasshouse**
- **St Vincents Boiler**

# Audit /NC Progress

Audit	Observations	Comment.
Arena	Awaiting report	Focus on Pool operation.
CAUL	Awaiting report	
IMI	Scheduled for end of Sept	
Internal Audit		September - Capital Projects and minor works.
Survellence Audit		Scheduled October.
No NC's raised over the period.		

The image features a modern multi-story building with a prominent glass facade on the right side, set against a clear blue sky. The left side of the image is dominated by the dense, dark green foliage of trees. The text 'Western Campus Update' is centered in a white, sans-serif font.

# Western Campus Update

# Energy Security

- Energy Security
  - Note to UMT issued
- Possible Scenarios
  - Load shifting at peak times.
  - Mandated reductions.
  - Unplanned outages.
  - Planned outages.









The final stage of the plan would involve the government rationing gas by allocating supplies to certain sectors, but several areas across Germany have already started to prepare for the worst.

One district is turning off the hot water in more than 80 schools and 60 gyms, the Financial Times reported.

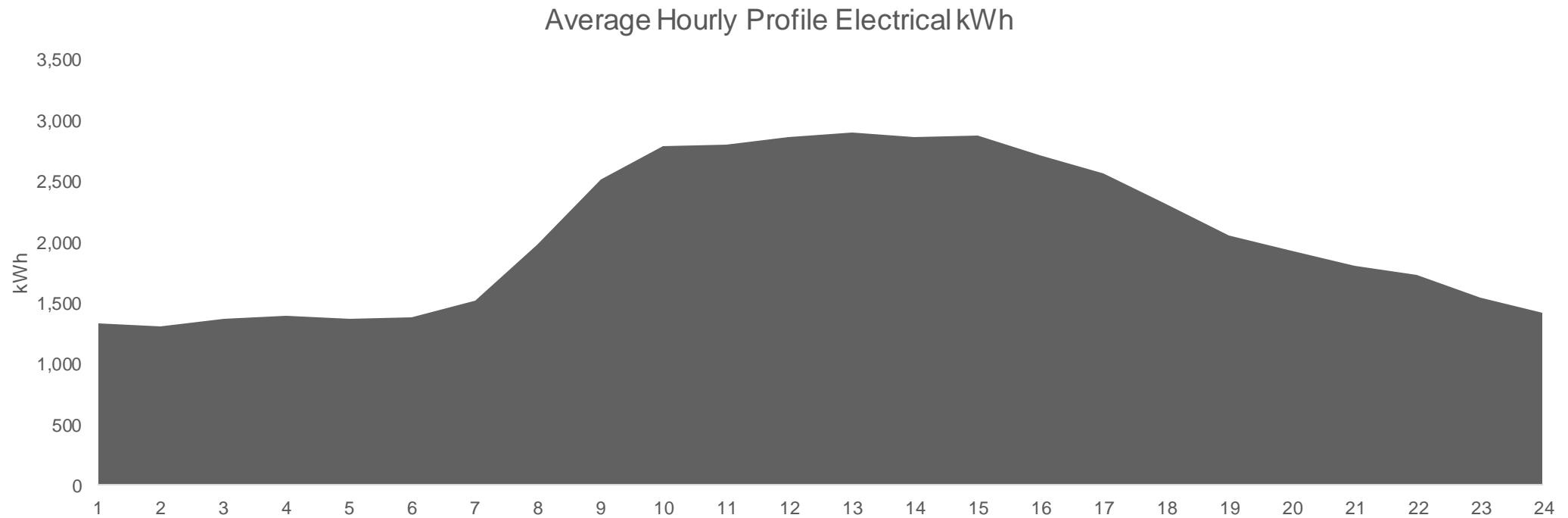
In Düsseldorf, a huge swimming pool complex has been closed to save energy.

Berlin is also lowering the temperatures of its outdoor pools, and the city of Cologne is also dimming its street lighting after 11pm, according to the FT.

## Selection of energy-saving measures in Germany from September

-  **Public buildings heated to max. 19°C**
-  **No heating in communal spaces of public buildings (e.g. corridors)**
-  **Monuments and public buildings won't be illuminated**
-  **Shop doors can't be kept permanently open**
-  **No lighting in shop windows or on billboards from 10pm**
-  **Private pools can't be heated with energy from grid**

# Typical Electrical Profile

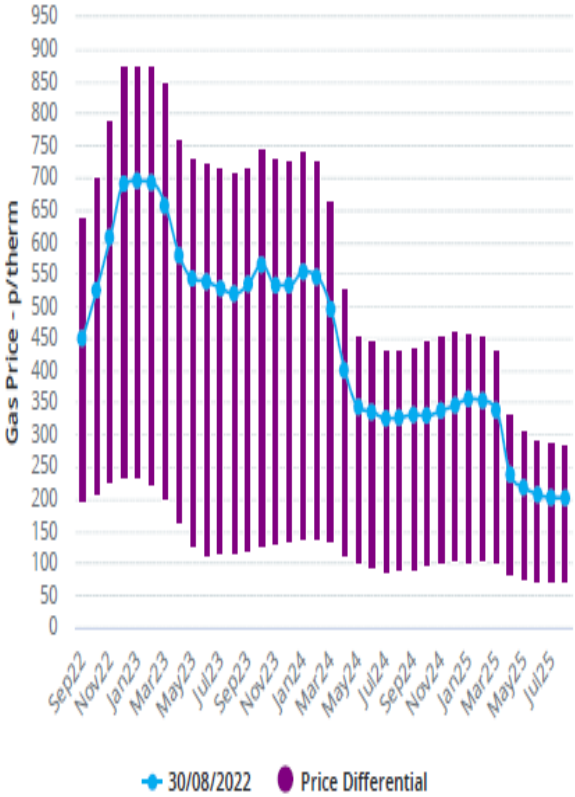




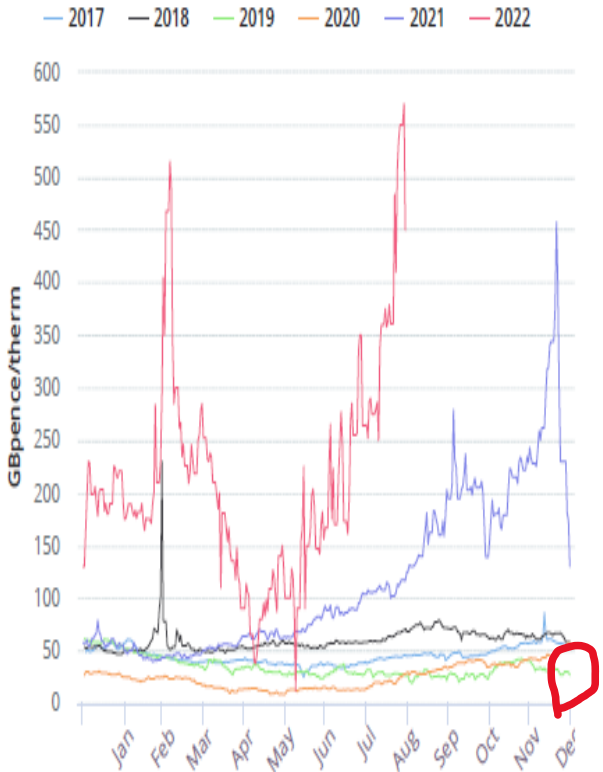
# Energy Procurement

Removed as commercially sensitive.

Graph shows High, Low range and Closing Gas Prices



NBP Spot (Historical)



# AOB

- LEAF in LABs
- Engagement
- OPW / UCC Campaign



# Project Listing to get to 2030

No	Building	Project	Theme	GHG Reduction CO 2	Electrical Change kWh by 2030	Thermal Change kWh by 2030	Capital Cost	Change Annual Opex Cost	Technical Difficulty.	Cost per T Abated
1	All	2% EE annual reductions 2022-	Energy Efficiency	972	- 3,306,000	-	€ 4,000,000	-€ 264,480	Low	€ 4,115
2	UCC Green labs	Energy Management within Labs	Energy Efficiency	382	- 1,300,000	-	€ 675,000	-€ 104,000	Low	€ 1,767
3	Arena	Retirement of CHP	Energy Efficiency	433	600,000	- 2,500,000	€ 264,000	€ 160,500	Low	€ 610
4	CAUL	10% Electrical Reduction	Energy Efficiency	96	- 326,000		€ -			€ -
5	CAUL	10% Thermal Reduction	Energy Efficiency	3		- 15,000	€ -			€ -
6	IMI	10% Electrical Reduction	Energy Efficiency	20	- 70,000		€ -			€ -
7	IMI	10% Thermal Reduction	Energy Efficiency	38		- 188,000	€ -			€ -
8	ORB	ASHP Installation	Heat Pump	42	65,000	- 252,000	€ 500,000	€ 16,540	Med	€ 12,019
9	Enterprise	Deep retrofit	Heat Pump	60	81,700	- 350,000	€ 2,800,000	€ 22,286	Med	€ 46,589
10	Tyndall	Heat Pump Installation	Heat Pump	998	1,163,000	- 3,878,000	€ 1,500,000	€ 267,550	Med	€ 1,503
11	Boole	SCA Heat Pump	Heat Pump	84	130,000	- 420,000	€ 250,000	€ 29,300	High	€ 2,976
12	District Heating	Decarbonisation of DH Network	Heat Pump	1,373	2,400,000	- 8,000,000	€ 10,000,000	€ 552,000	High	€ 7,283
13	FSB	HT ASHP	Heat Pump	222	359,000	- 1,335,000	€ 2,000,000	€ 88,795	High	€ 9,009
14	Pharmacy	ASHP Installation	Heat Pump	174	322,000	- 1,100,000	€ 500,000	€ 75,260	Med	€ 2,874
15	Student Centre	ASHP Installation	Heat Pump	40	75,000	- 250,000	€ 500,000	€ 17,250	Med	€ 12,376
16	Houses	Electrification	Heat Pump	132	662,000	- 1,100,000	€ 380,000	€ 102,460	Low	€ 2,879
17	Brookfield	ASHP Installation	Heat Pump	289	550,000	- 1,800,000	€ 500,000	€ 125,000	Med	€ 1,730
18	BioScience	ASHP Installation	Heat Pump	197	268,000	- 1,150,000	€ 550,000	€ 73,190	Med	€ 2,792
19	Arena	ASHP Installation	Heat Pump	194	360,000	- 1,200,000	€ 1,000,000	€ 82,800	High	€ 5,155
20	Group	PV array Roll Out Phase 1 Glucksman / WGB and Student	Renewable	35	250,000	-	€ 550,000	€ 20,000	Low	€ 15,714
21	Group	Phase 2 PV Array	Renewable	35	250,000		€ 650,000	€ 20,000	Med	€ 18,571
22	Group	Phase 3 PV Array	Renewable	35	250,000		€ 850,000	€ 20,000	High	€ 24,286
				5,854	2,783,700	- 23,538,000	€ 27,469,000	€ 1,304,451		