

**GridPP**

# Journey to NetZero

**Where are we?**

**Big Picture**

**What we  
have learnt**

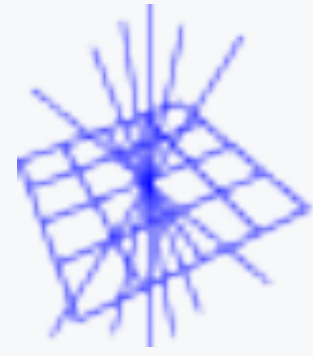
**ECO-Grid  
Plan**

**Discussion**

**Speaker: Dr Alex Owen**  
[r.a.owen@qmul.ac.uk](mailto:r.a.owen@qmul.ac.uk)



**Queen Mary**  
University of London



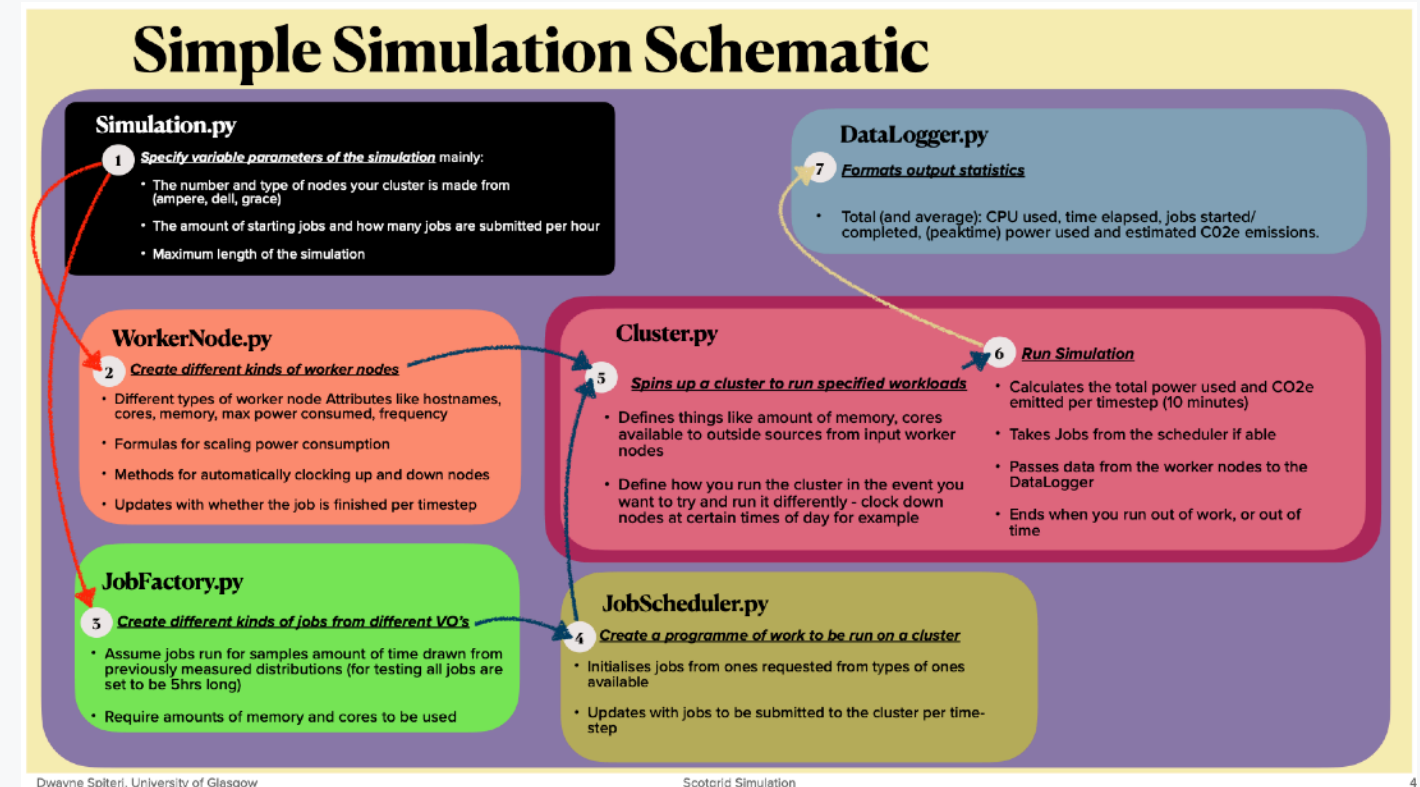
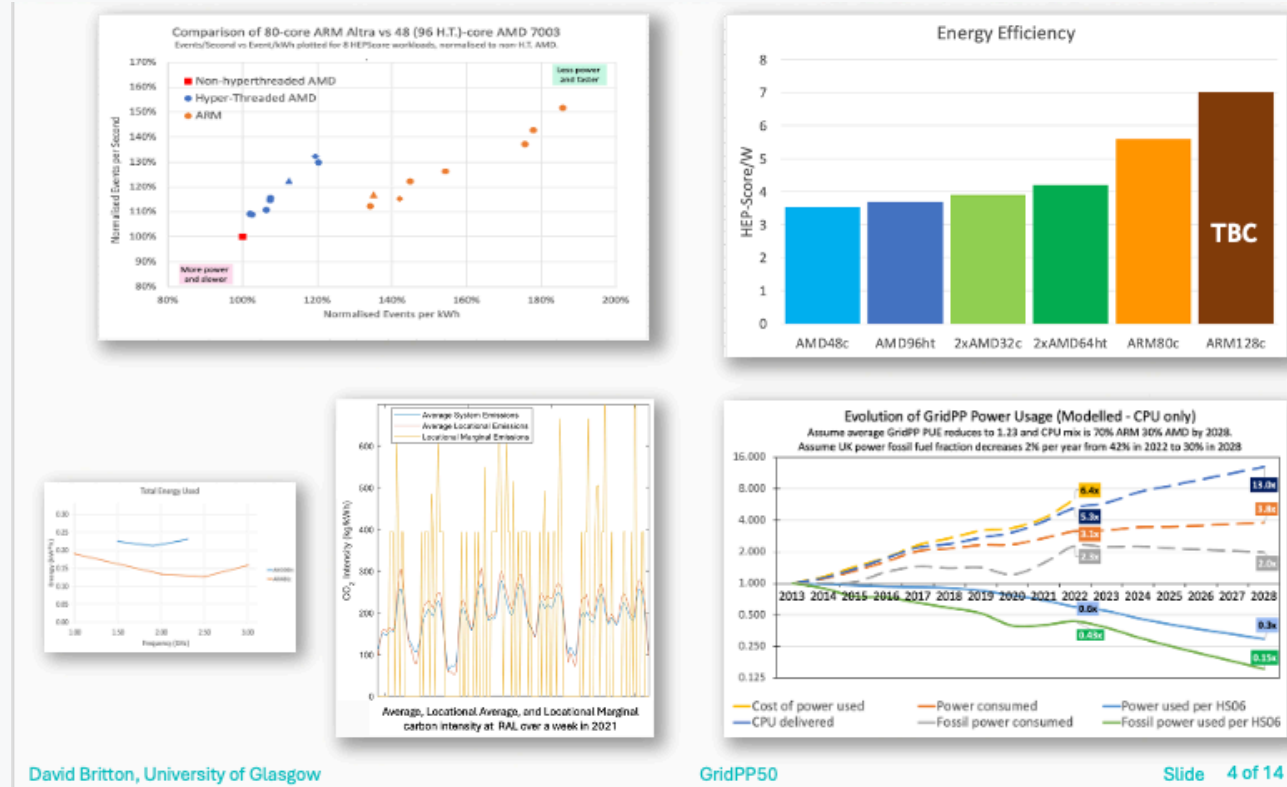
# GridPP

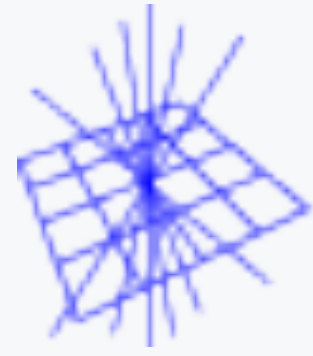
# Where are we?

Non-exhaustive list...

## Comparing ARM and Intel and clock rates

## Data Center Digital Twin





**GridPP**

# Where are we?

Non-exhaustive list...

**Measuring Data  
Centre Carbon  
Costs**



<https://doi.org/10.5281/zenodo.7692451>

<https://doi.org/10.1051/epjconf/202429507015>

**Allocating Carbon  
Costs to Payloads**

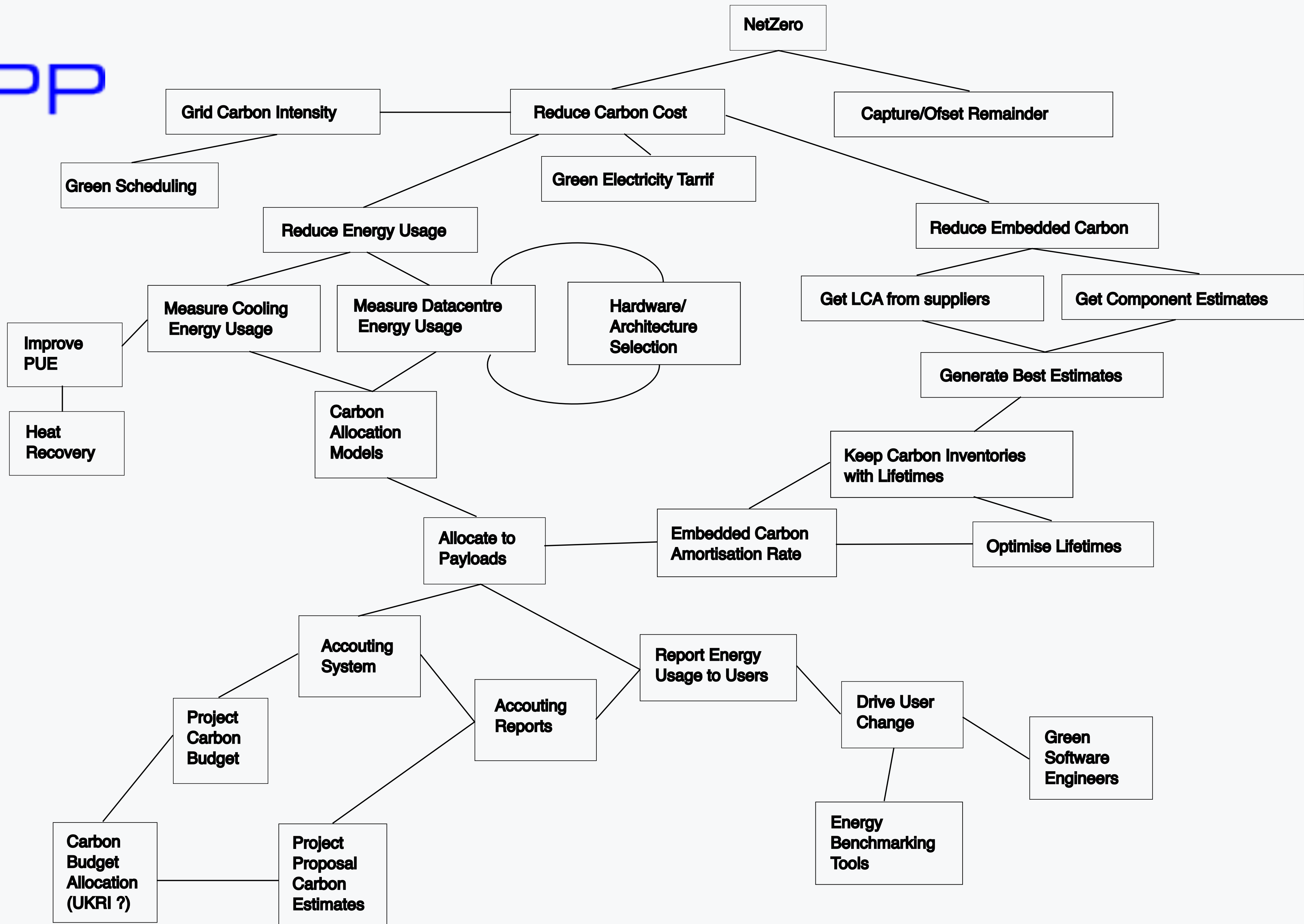


**iris CMP**

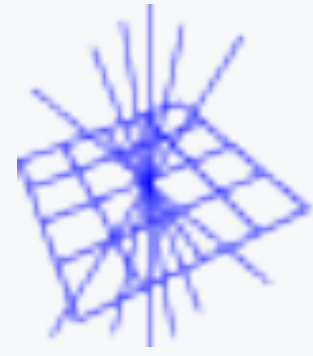
<https://doi.org/10.5281/zenodo.10966001>



# NetZero The Big Picture



Based on figure in IRIS-CMP Report



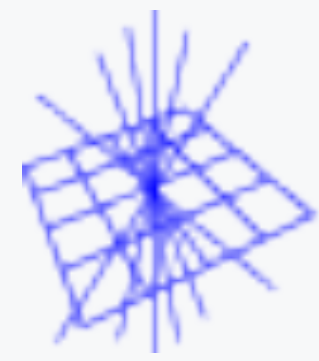
**GridPP**

# What have we learnt?

**Measure  
Model  
Monitor  
Moderate**

**Gather widely  
Use wisely**

**Think like an  
Accountant!  
(Policy)**



**GridPP**

**ECO-Grid**

Ecologically Conscious Operations for Grid Computing

**WP0**

**Documenting Existing Tools**  
**Community Engagement**

**WP2**

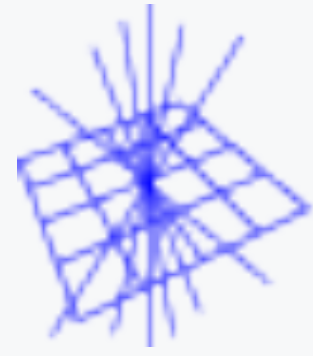
**Reporting and Visualisation**  
**Refining data formats and CI collection**  
**Defining reporting KPIs**  
**Data repository development**  
**Data Visualisation**  
**Site Integration**

**WP1**

**Site Tools**  
**Document site data sources (QMUL)**  
**Prototype interfaces/data formats**  
**Hardware database?**  
**Prototype data collection**  
**Prototype data exporting**

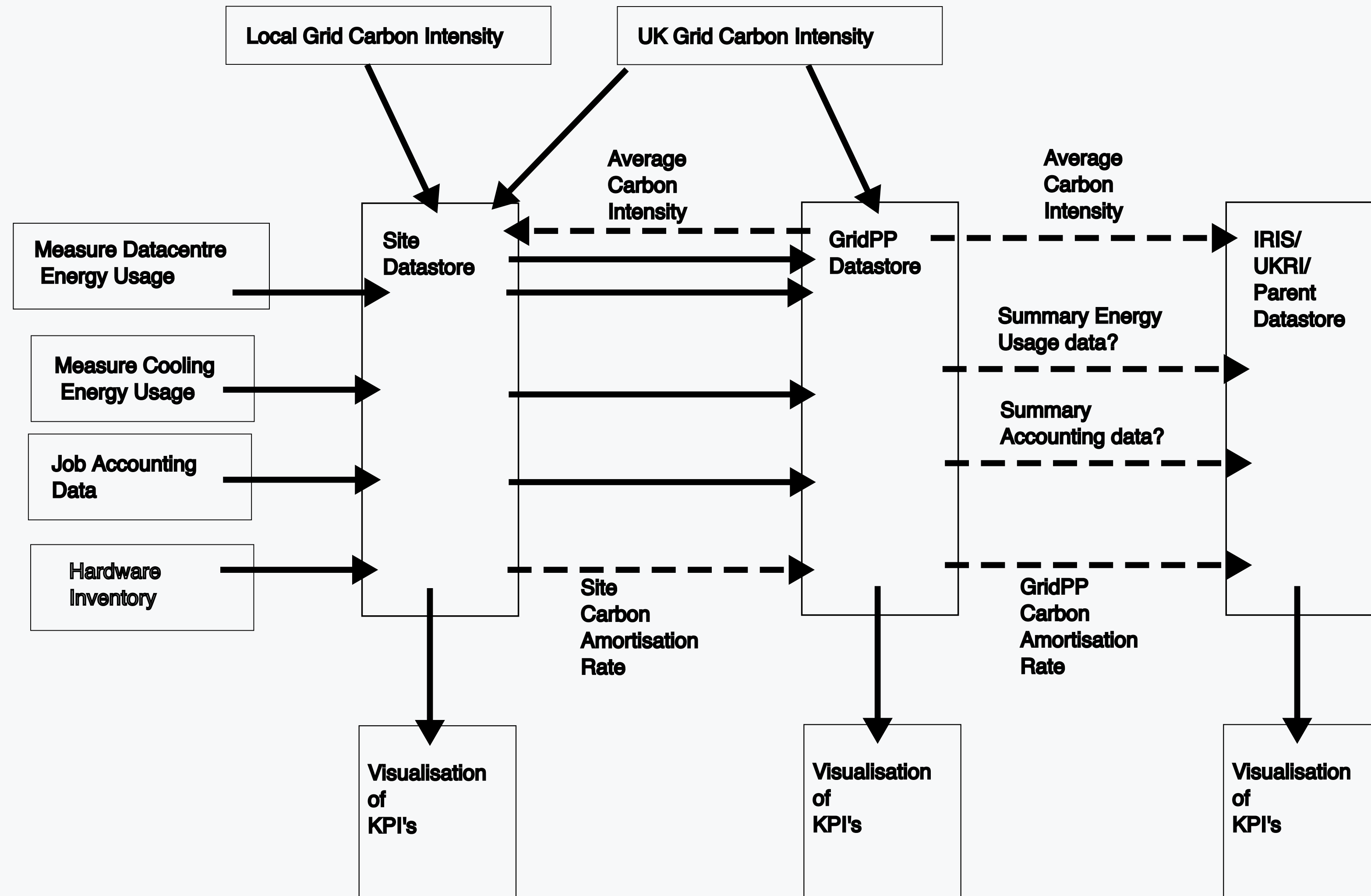
**WP3**

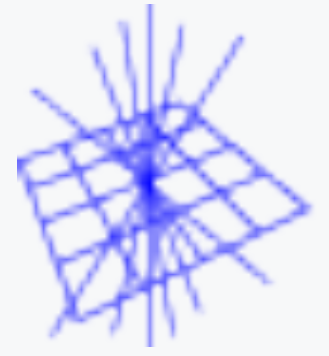
**Roll out across GridPP**  
**Leasing with other sites**  
**Refining data requirements**  
**Prototype deployments**



# GridPP

# ECO-Grid Model





**GridPP**

# Your Input?

## Discussion

### Measuring Energy Usage:

- \* IPMI?
- \* iPDU's?
- \* Whole Rack or Datacenter readings?
  - Politics of datacenter readings!
- \* Cooling Energy Usage data?

### Hardware Inventories:

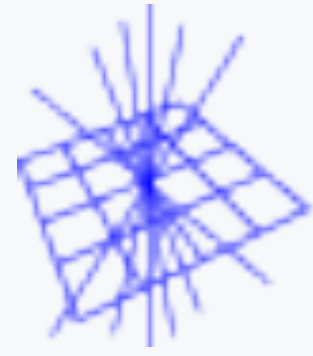
- \* Embedded carbon
- \* Idle power
- \* Birthdate
- \* Lifetime

Needed to calculate  
Embedded carbon

### What have we missed?

- \* GPU's!
- \* What else?





**GridPP**

# Final Thoughts

## Ecologically Conscious Operations for Grid Computing

QMUL recruiting soon...

Conscious we need to  
integrate into existing  
setups with  
minimal effort

Look forward to  
working with sites  
as we progress

# Thanks

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