

**Document Control**

Rev	Date	By	Comments
A	Jun'16	L. Davies	Technical Review Update
B	Oct'17	L. Davies	Technical Review Update
C	Dec 17	UoL	Sign off for release
D	Sept 20	UoL	Minor updates
F	Nov 20	UoL	Minor additions and Incoming Supply Protocols

**Design Guidance**

1. As part of any large-scale refurbishment or new build development TM22, TM39 and BREEAM metering schedules ,(ie a full list of metering points), shall be completed as part of the design process and submitted to the UOL energy monitoring team at RIBA stage 3 for review/approval. Performance specified projects shall ensure that the design subcontractor completes the metering strategy schedule as part of the final design.
2. Additional quality monitoring will be needed for certain items being metered. All whole building level metering will require such quality monitoring and this will require ModBus outputs in addition to pulse output metering for all items so monitored. Such items will include power management, heat flow etc.
3. Upon agreement with the University the agreed metering schedules shall be progressed into a design proposal and full details shall then be included within the tender specification for installation during site procurement works. These details shall include all design details of components and connections required.
4. Metering systems shall be of the following types throughout the university and connected to these networks. This is to include pulse and ModBus outputs.
  - Non residential building data collection service – connect to Databird network only
  - Whole non residential building heat metering data – connect to Databird and BMS system networks
  - Residential building data collection service – Connect to Demma Energy network only
  - Whole residential building heat metering data – Connect to Demma Energy and BMS system networks.
  - Power quality monitoring of energy systems, all buildings – Connect to PME (Schneider Electric) network only.
5. The electrical subcontractor will be expected to undertake all field wiring of metering devices back to an agreed (Databird or Demma) marshalling point and all such cables will be required to run in containment alongside other data cabling on site.
6. Upon project completion calibration and commissioning certificates shall be provided for all types of meters (including heat, gas and water meters) and collated within the electrical O&M manuals under the respective section.
7. Any whole building level, recharge or sustainables metering shall be MID approved.
8. All metering systems shall be compatible with the relevant system (Databird or Demma) head end graphics interface and shall include for any additional software modifications necessary.
9. Metering of specialist services such as bio fuel and oil shall be discussed with the UOL energy management team during the detailed design process.
10. Incoming utility supplies, including connections to the district heating network, require very early consideration by the design team with discussions regarding the same commencing at RIBA stage 1. This will apply to both new builds and refurbishment projects where external incoming demands are increased.
11. For refurbishments it will be necessary to determine how the overall maximum demands for incoming services are impacted by the development. Metering of the existing demands may be necessary to help determine this.
12. The process required for the above will be as follows.
  - a. For the sake of clarity the term “utility provider” or similar used below also includes the central campus district heating provider Engie.
  - b. At RIBA stage 1, refined at stage 2, the design team will need to consider the availability of supplies to



- ensure that the project can be serviced with adequate incoming power, water, heat, data etc etc.
- c. RIBA stage 1 site selection criteria must consider whether adequate supplies are available by early discussions with utility providers. High level capacity demands for each service must be calculated and discussions with utility providers will be based around these demands. The design team will be expected to lead these discussions with the statutory suppliers. Confirmations must be obtained that the required service capacities are available.
  - d. At RIBA stage 2 more detailed demand capacity calculations must then be undertaken for each service and these are then to be used by the design team to obtain an outline budget quotation from the relevant statutory supplier for the incoming service provision. The consultant designer will be expected to provide these quotations to the University for information.
  - e. At RIBA stage 4 a formal quotation is to be obtained from each statutory provider. This is to be based upon final design information and the design team, or Contractor if design and build, will be expected to lead this process and act as the University Agent in completing the paperwork.
  - f. In all cases any Utility Providers costs required for providing the above quotations are to be met by the parties obtaining these quotes for later recovery back from the University.
  - g. At the end of the above processes the University will be in possession of a formal quotation, obtained via its agents as described above, upon which an order can be placed for the incoming Utility supply.
  - h. When this process is completed the University internal Project Manager will place the necessary order and complete all necessary paperwork and forms that the relevant Utility Provider requires to process the installation works and subsequently provide the physical incoming services.
  - i. In parallel with item "h" above the University internal Project manager will also contact the appointed Energy Broker to progress suitable choices for the supply of electric and natural gas for the utility service required and set up that supplier agreement.
  - j. In parallel with item "h" above the University internal Project manager will also contact the internal University utility team to progress suitable choices for the supply of water for the utility service required and set up that supplier agreement.

**Design Components**

Item	Manufacturer	Comments
Energy Broker	Consultus International (until September 2022)  The Energy Consortium (October 2022 onwards)	These are the Universities appointed Energy broker.
Utility Suppliers	Half Hourly Electrical Supplies (over 100kVA)  Non Half Hourly Electrical Supplies (over 100kVA)  Gas  Water (residential)  Water (non residential)  Central Campus Networks	Engie  Total Gas and Power  Total Gas and Power  Severn Trent  Castle Water  Leicester District Energy Company



### Design Components

Item	Manufacturer	Comments
Mechanical Metering	Kamstrup (Heat) Sontex (Heat)	<p>Water, gas and electricity meters shall be monitored by a separate monitoring system managed by the University Environment Team. Utility metering shall not normally be included in the Controls Package. The contractor shall ensure adequate allowances are made within the tender to employ the University preferred specialist to install, commission and reconfigure the head end data collection network.</p> <p>For meters provided by the mechanical subcontractor the following shall be provided as a minimum:</p> <ul style="list-style-type: none"> <li>• Water - Pulsed output (volt free)</li> <li>• Gas - Pulsed output (volt free)</li> <li>• Heat - Pulsed output (volt free)</li> </ul> <p>The mechanical design engineer shall ensure that final meter specification is agreed with the preferred electrical metering specialist prior to specification. Meters shall be supplied c/w calibration certificate to facilitate setup of final pulse monitoring. Heat meters shall be RHI compliant EN1434 Class2/MI004 approved.</p> <p>Where a meter is split with a 3<sup>rd</sup> party such as a non-university landlord or utility shipper the meter shall be supplied with a pulse splitter to ensure monitoring by the university metering network is not overlooked.</p>



### Design Components

Item	Manufacturer	Comments
LV Metering	Autometers ND Cube 400	<p>Digital Functional displays of the following as a minimum: V/A/Hz/kWh/MD/System PF.</p> <p>All meters to have RS485 communication protocol (Modbus). Bus cabling to all meters to be wired back to data collectors located to suit the relevant network requirements. All data collectors to be provided with an RJ45 data outlet connected to the local LAN.</p> <p>Electrical metering shall be provided in accordance with Pt L guidance &amp; TM39 including but not limited to the provision for split metering of lighting, power, renewable, and specialist facilities.</p> <p>GPRS provision including transmission equipment to be provided for off-site data collection.</p> <p>Wiring to all mechanical metering to be undertaken by the electrical subcontractor and logged by the metering collection service also including gas, water and heat meters.</p> <p>University of Leicester shall be given 60 days' notice for application of the utility shipper meter requirements in all cases.</p> <p>Metering for renewable technologies shall be RHI compliant to EN1434 Class 2/MI004.</p> <p>All metering systems shall be compatible with the head end graphics interface and shall include for any additional software modifications necessary to ensure the above.</p>

**GD05****Utility Management, Metering and  
Incoming Supply Agreements.****UNIVERSITY OF  
LEICESTER****Framework Contractors**

Service	Specialist	Address & Contact Details
Metering	Databird Network  Utilitas	Energy Metering Technology Ltd 175 Glen road Oadby Leicester LE2 4RJ Contact: Mr David Jackson Tel: 0116 271 7217 Mob: 07740 819751 Email: <a href="mailto:davidj@meteringtech.com">davidj@meteringtech.com</a>  Utilitas Victory House 400 Pavillion Drive Northampton Business Park Northampton NN4 7PA Contact: Mr Tony McConville Tel: 01604 726283 Mob: 07540 223719 Email: <a href="mailto:tony.mcconville@utilitas.com">tony.mcconville@utilitas.com</a>