

## City of Sydney: Energy audit proposal outline

### Note the following key conditions

- This energy audit proposal outline provides the minimum requirements of any grant application for City of Sydney energy audit funding and will be considered by the grant assessment panel in determining funding recommendations.
- The following items must be covered in your proposal.

## 1. Proposal Summary

It is expected that before submitting a project proposal, the following scoping meeting will have been held to inform proposal.

Scoping meeting (pre-proposal)	Y/N
Define the site, building or sub-system boundary covered by the targeted audit and any exclusions	Y
Clearly understand data availability and impact on audit outcomes	Y
Discuss level of accuracy and cost/benefits of sub-metering and data logging	Y
Understand the future plans for the site that might affect energy use	Y
Review the status of opportunities identified in previous audits	Y
Discuss financial hurdle rate and other criteria for assessing opportunities as defined by the business	Y
Identify key stakeholders, influence on site energy performance, and areas of focus for the project	Y

Include the following within a summary at the beginning of your proposal:

- Auditing company name
- Proposal cost (total) and split of costs between City of Sydney and the applicant
- Applicant commitment to implementation projects as a percentage of their annual energy bill
- Boundary<sup>1</sup> of the targeted energy audit including which fuels are included
- Annual site-wide energy consumption
- Estimated energy consumption of the sub-system that is the target of the energy audit (delete if N/A)
- An estimate of expected cost-effective energy savings as a percentage of sub-system and site-wide energy consumption (based on previous experience with buildings of same scale/sector).

Please complete the table below and insert into your proposal.

Energy type	Unit Cost	Energy used in whole site (GJ)	Energy used in Targeted area (GJ)
(e.g. electricity)	(e.g. \$/kWh)		

## 2. Project background

- Description of applicant organisation's main operations including size/location of site(s)
- Key areas of energy use
- Description of the sub-system that is the target of the energy audit

<sup>1</sup> Physical or site limits and/or organisational limits as defined by the organisation (AS/NZS 3598.2:2014).

- Potential opportunities in the targeted area identified during initial discussion and walk-through
- Discuss anything unusual about the site compared to others within its sector, or any issues that might affect the quality or outcomes of the targeted energy audit
- Financial hurdle rate and other criteria for assessing opportunities defined by participant.

### **3. Proposed methodology**

Describe how you would approach the targeted energy audit and outline any innovative approaches.

#### 3.1 Investigation methodology

- Key tasks/ visits/ meetings
- Approach to the work on site
- Any key issues identified by the site
- Confirm which parts of the audit activities will be in accordance with “Detailed Energy Audit”, or “Precision Sub-System Audit” as defined in AS 3598:2014:

*Detailed Energy Audit:*

- *Detailed audit to identify a wide range of opportunities*
- *Energy analysis to be developed based on the most detailed data available*
- *Detailed understanding of site energy consumption*
- *Identification and calculation or estimation of energy losses in production, distribution and services*
- *Medium level of accuracy for energy savings, costs and benefits*

*Precision subsystem audit:*

- *Detailed audit of a specific subsystem*
- *Detailed understanding of energy consumption for the audited system*
- *Requires measurements in addition to available site data*
- *Identification and calculation or estimation of energy losses in production, and distribution and services*
- *Detailed comparison of performance compared to best available technology*
- *Requires a greater involvement from the organisation*
- *High level of accuracy for energy savings, costs and benefits*

#### 3.2 Data collection plan and data logging methodology

- Propose data logging appropriate to scope of audit, energy uses, availability of site data and energy consumption
- Describe how your approach maximises the value of any required data logging
- Describe any options, costs and benefits.

#### 3.3 Project deliverables

Outline all project deliverables including reports and presentations.

#### 4. Proposed Timeframe

Please complete the following table and insert into your proposal.

Deliverable	Proposed Milestone Date
Scoping visit	Insert date
Proposal acceptance and appointment date (assume 4 weeks after scoping visit to allow for proposal development and review)	
Pre-site inspection kick-off meeting	
Receipt of data from client for initial analysis (Note: all data collection and analysis must be completed prior to <i>Draft Report</i> Submission)	
Site visit	
<i>Draft Report and Template</i> submission to applicant	
<i>Draft Report</i> presentation (allow 2 weeks after <i>Draft Report</i> submission)	
<i>Final Report</i> submission to applicant	
<b>TOTAL AUDIT TIMEFRAME</b>	<b>Insert no. of weeks</b>

#### 5. Project Team

##### 5.1 Personnel

- Provide names and roles of the proposed personnel for the audit
- All lead auditors and energy auditors proposed as part of the project team
- Personnel listed here must undertake the investigation. One Lead Auditor is mandatory.
- Hourly rates must comply with agreed panel rates.

Please complete the following table and insert into your proposal.

Project team member name	Relevant qualification or certifications	Role	Key role within audit	Hourly rate

##### 5.2 Personnel experience specific to this project

Demonstrated personnel experience in the targeted area Ensure that the team includes either nominated auditors, peer reviewers or supervision by persons with technical experience in the targeted area

- Provide evidence of the above which may include evidence of specific project experience, competence, continued professional development, training.

#### 6. Project costs

- Provide a fixed cost excluding GST.
- List any exclusions and assumptions within Section 8. Otherwise City of Sydney will expect that all energy uses within the targeted equipment/building/system boundary on site will be analysed and reported on

- All costs must be included in this price. If proposed itemised costs do not eventuate such as data logger hire, these costs will be deducted from the final invoice.

Please complete the following table and insert into your proposal. Additional items may be added as relevant.

Task	Insert Staff Name	Insert Staff Name	Insert Sub-consultant (if applicable)	Total Hours	Price (exc. GST)
Project Management & Quality Review	Insert hours	Insert hours	Insert hours		
<b>Targeted Investigation</b>					
Pre site inspection kick off meeting					
Site investigation (on-site)					
Data analysis (off-site)					
<b>Reports</b>					
Draft Report writing & Draft meeting					
Business Case analysis, contact of suppliers and final report writing (insert no. of business cases)					
<b>SUBTOTAL HOURS &amp; COST</b>					
<b>Expenses</b>					
Travel time					
Accommodation and disbursements	(inc. no. of nights)				\$
Data logging requirements and costs					\$
<b>TOTAL PROPOSAL COST</b>					
City of Sydney proportion of costs (exc. gst)			Insert %	Insert cost	
Participant proportion of costs (exc. gst)			Insert %	Insert cost	

## 7. Scope of works

Please complete the following table and insert into your proposal.

<b>Stage 1 Pre-site inspection – project kick-off meeting and data analysis</b>	<b>Y/N</b>
Project kick-off meeting (via telephone or in person which is preferred) - Discuss data collection plan and clarify responsibilities	Telephone/ in person
Analyse two-years' energy data from utility meters, SCADA, BMS and other sources. Conduct analysis for inclusion in the <i>Draft Report</i> in accordance with City of Sydney template	Y/N
Analyse factors that influence energy use and create Energy Performance Indicators (EnPIs), using regression analysis, with degree-day and/or production/business data <sup>2</sup>	Y/N
Note strength of correlation of EnPIs and typical variation	
Compare with target EnPIs for overall facility and/or with industry benchmarks	
<b>Stage 2 Site inspection</b>	<b>Y/N</b>
Initial meeting on site.	Y

<sup>2</sup> Key performance indicators must be shown to be statistically valid ( $R^2 > 0.75$  between dependent and independent variables within the targeted investigation area) and the strength of any correlation shown. If no indicators are proven to be valid after several variables are investigated, then the auditor is to provide guidance on metering of sub-processes that might mean that relevant KPIs can be developed in future, and/or why the correlation was not found.

<ul style="list-style-type: none"> <li>- Follow up any outstanding data</li> <li>- Discuss issues and limitations that may influence the assessment of energy saving opportunities</li> <li>- Job safety analysis</li> </ul>	
Site inspection and further data collection	Y
Apply data logging equipment as per Data Logging Collection Plan (Attachment 1)	Y
Compile inventory of major energy using equipment using City of Sydney templates	Y
Review operations including start-up, sequencing, shut-down and temperature or process set-points, and identify improvements	Y
Identify ALL opportunities to reduce energy consumption, costs, energy demand and greenhouse gas emissions in accordance with agreements made at <i>Scoping Meeting</i>	Y
Brainstorming session at the conclusion of the site visit	Y

<b>Stage 3 Further analysis and submit <i>Draft Report and Energy Audit Template</i></b>	<b>Y/N</b>
Collect any further data required from client company and analyse	Y
Complete <i>Draft Report</i> and <i>Energy Audit Template</i> include all information according to City of Sydney template <ul style="list-style-type: none"> <li>- For general audit tasks, Estimate (to Medium Accuracy<sup>3</sup>) cost savings, energy savings, greenhouse gas reductions and capital costs</li> <li>- For relevant subsystem audit tasks, Estimate (to Higher Accuracy<sup>4</sup>) cost savings, energy savings, greenhouse gas reductions and capital costs</li> <li>- List all assumptions</li> </ul>	Y
Submit draft <i>Draft Report</i> and <i>Energy Audit Template</i> to City of Sydney for review	Y/N

<b>Stage 4 Opportunities Meeting – presentation of <i>Draft Report</i></b>	<b>Y/N</b>
Organise meeting with applicant once <i>Draft Report</i> has been reviewed by applicant. Allow two weeks for applicant to review document prior to meeting.	Y
Present data analysis and <i>Draft Report</i> to senior management and key technical personnel	Y
Selection of projects for more detailed investigation as business cases with more accurate costing/ savings	Y

<b>Stage 5 Development of business cases and <i>Final Report</i></b>	<b>Y/N</b>
Carry out detailed investigation on nominated projects to develop into business cases	Y
Prepare Business Cases: Each business case should be sufficient for client to decide whether to proceed with the project, and include all elements as per the template. Indicate number of business cases.	Y
Complete Final report and include all information according to City of Sydney template	Y
Submit draft <i>Final Report</i> to City of Sydney for review	Y

<b>Stage 6 Implementation Presentation</b>	<b>Y/N</b>
Provide and present <i>Final Report</i> to client's senior management and relevant facility management/impacted team	Y
Discuss implementation plan for each business case. Specify steps to CAPEX approval	
Identify potential opportunities for other support, eg. <i>City of Sydney Building Tune-Up Program implementation support</i> , Building Upgrade Finance. Discuss implementation timelines	
Identify further opportunities for ESC creation, including ACP referral and discuss implementation timelines	
Discuss what data collection will be required for City of Sydney acquittal process	

<sup>3</sup> **Medium Accuracy** refers to energy savings quantified using site and energy analysis including consideration of site-specific data with consideration of the detailed energy balance. Capital costs are estimated based on a summation of major cost items based on the configuration of systems and equipment necessary to implement the energy savings measure.

<sup>4</sup> **Higher Accuracy** goes beyond Medium Accuracy to ensure that energy savings are quantified with additional monitoring data. Capital costs are also estimated from contractor quotes and/or detailed cost estimates based on specific equipment selections and schematic designs.