



EU Green Public Procurement criteria for buildings

1st Ad-Hoc Working Group webinar, 21 March 2022

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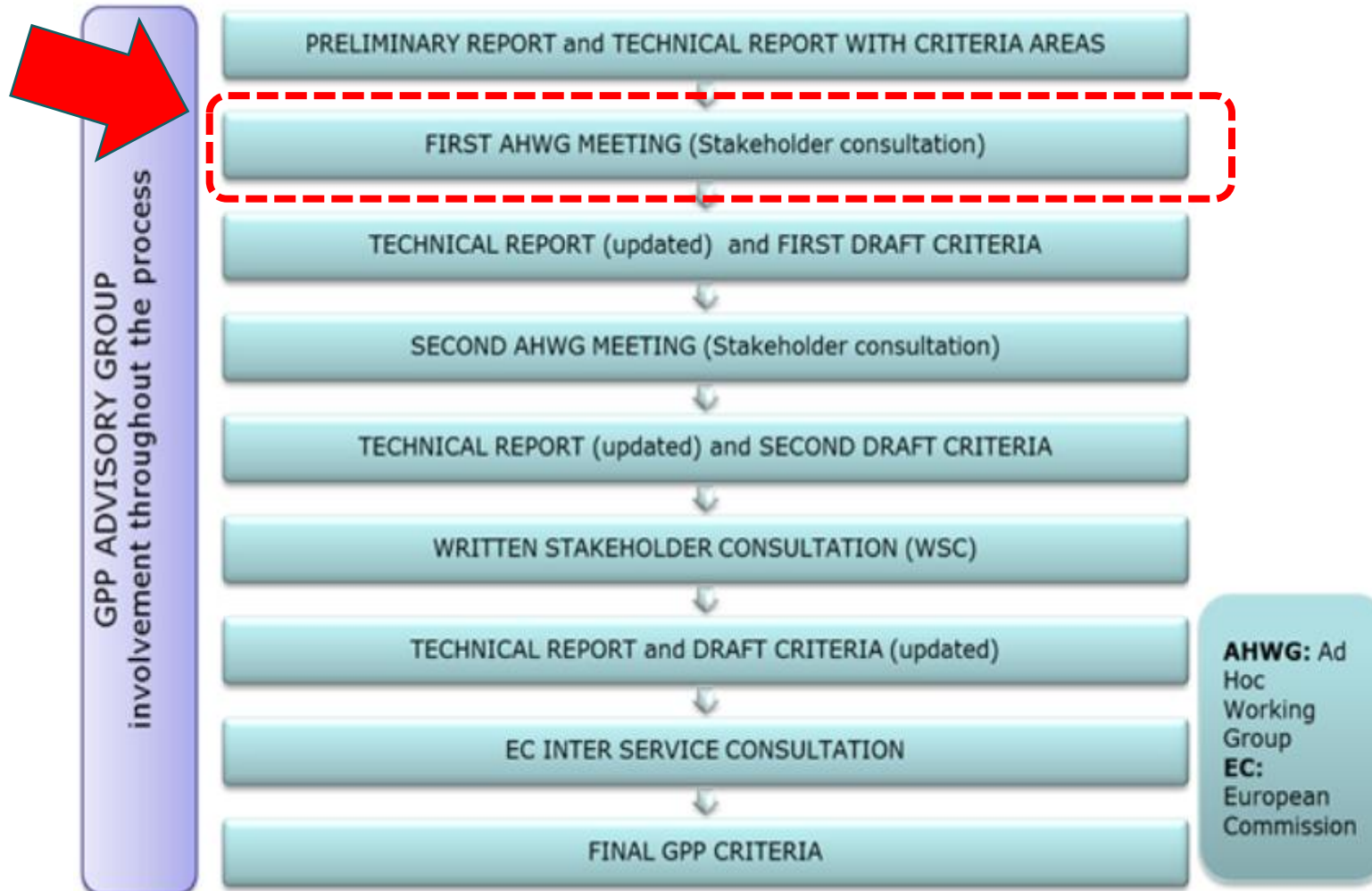
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Housekeeping and general points

- Please have your cameras turned off and micro-phones muted.
- Time is allotted for discussion after each agenda point.
- If you have oral questions or comments, please request the floor in the chat window and unmute yourself when prompted by the chair.
- You can also type questions in the chat, but please be succinct. You can expand your point later when we respond.
- The meeting will be recorded for the purposes of writing the minutes. If the recording is to be uploaded to the Commission website, it can be edited to remove individual interventions upon request.
- The slides will be shared on the JRC website*.

Purpose of this meeting: the process



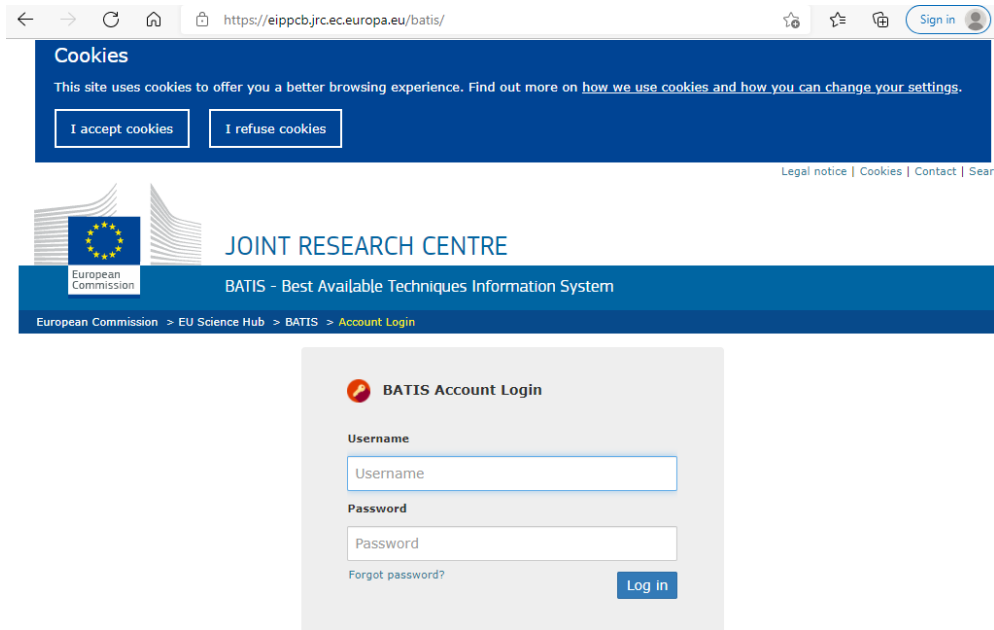
- Part of the GPP criteria revision process.
- To explain our initial proposals.
- To obtain your reactions (today and in writing later).
- To call out for experts to form sub-groups by criteria “theme” to help form the second proposals.
- To ensure a transparent and inclusive process.

Purpose of this meeting: reactions

- To obtain your reactions in writing later:



- After today, you can also submit your comments in writing (directly on an html version of the report) via our **BATIS stakeholder platform**. This requires us to create a user account for you.
- Your comments are not visible to other stakeholders.
- After the deadline for comments (**21st April**), we publish all comments as a table, in anonymous format.
- We will send an email after the second day to check **if you want to be registered** (it is free, non-committal).



The screenshot shows the BATIS stakeholder platform website. At the top, there is a browser address bar with the URL <https://eippcbjrc.ec.europa.eu/batis/>. Below the address bar is a blue banner with the text "Cookies" and a link to "how we use cookies and how you can change your settings". There are two buttons: "I accept cookies" and "I refuse cookies". Below the banner is the "JOINT RESEARCH CENTRE" logo and the text "BATIS - Best Available Techniques Information System". At the bottom, there is a blue navigation bar with the text "European Commission > EU Science Hub > BATIS > Account Login". The main content area shows the "BATIS Account Login" form with fields for "Username" and "Password", a "Log in" button, and a link for "Forgot password?".

Purpose of this meeting: expert sub groups

Theme 0

Building project processes, professional skills involved, costing exercises, architectural services, engineering services, BIM, procurement procedures, building or facilities management.

Theme 1

1a) Energy performance of buildings:

- National methodologies
- NZEB definitions
- Examples of GPP

1b) HVAC etc.

- Passive designs.
- Equipment specifications.
- Envelope people.
- 6 Market tendencies.
- Best practice.

Theme 1

1c) Embodied carbon:

- National or regional policies.
- Product level data.
- Scope and boundaries at building level.
- LCA software, EN 15978 and PEF.

1d) Operational carbon

- Energy and water consumption.
- Scope and boundaries.
- Maintenance impacts.
- Replacement cycles.

Theme 2

2a) Material efficiency:

- Best practices for quantity surveying.
- Design for adaptability.
- Design for deconstruction.

2b) Waste management

- Best practice for CDEW management.
- Review of recycling and recovery technologies.
- Market availability

Theme 3

3) Water efficiency:

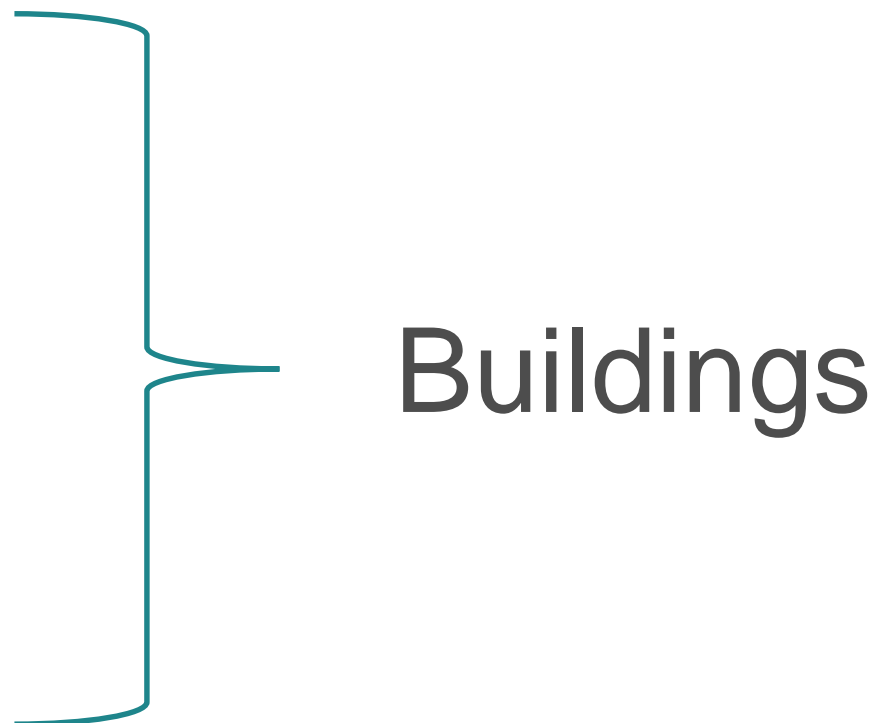
- Best practices for water efficiency.
- Market trends for taps, showers, toilets, GW and RW systems and irrigation equipment.
- Market trends and availability of products.

Background to EU GPP criteria for buildings

Procurement of “buildings” is **complex**:

Dedicated **EU GPP** criteria for:

- Sanitary tapware
- Toilets and urinals
- Water-based heaters
- Combined heat and power units
- Indoor lighting
- Wall panels
- Other sources of GPP....?
- **Energy labelling** criteria....



Background to EU GPP criteria for buildings

Procurement of “building” construction/renovation is **complex**:

- May be **architectural design contests** first if procurer is undecided about full details.
- Procedures may be open, restricted or competitive and will no doubt involve negotiation sooner or later depending on how clear the procurer is about needs, wants and costs.
- Any national or international contractors will generally have to **sub-contract** many of the specialised services involved and look for regional labour and equipment or material providers.
- Procurer needs to decide if **design services** AND **construction/renovation works** are carried out by the same contractor or consortium.
- Also the option for longer term **servicing contracts** of technical equipment or building management systems and also the option of **energy services contracting**.

Background to EU GPP criteria for buildings

General types of GPP criteria for buildings:

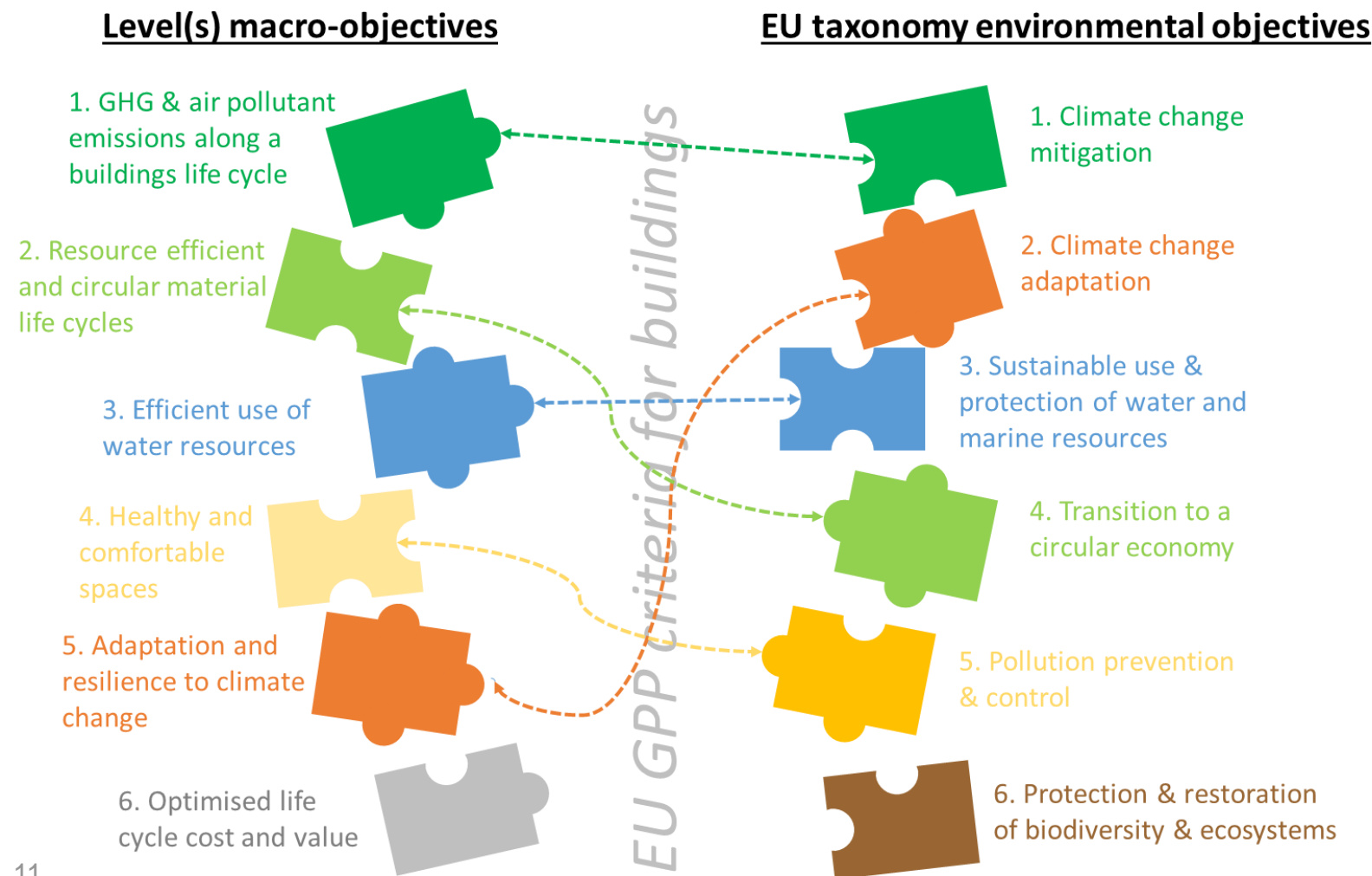
- *Note: Tenderers are companies trying to win the contract. Contractors are the winners.*
- **Selection criteria:** Conditions that tenderers must meet just to be able to be evaluated.
- **Technical specifications:** Mandatory minimum requirements for the subject matter being procured that all tenderers understand they will need to meet in their offers.
- **Award criteria:** Optional requirements that can make offers more competitive if they meet them (MEAT). Weighting is up to the procurer to decide.
- **Contract Performance Clauses:** Conditions that apply to contractors and the procurer after the award of the contract (can include incentives or penalties for exceeding or not meeting requirements).

Initial focus is on TS and SC. Look more at AC and CPC later.

Background to EU GPP criteria for buildings

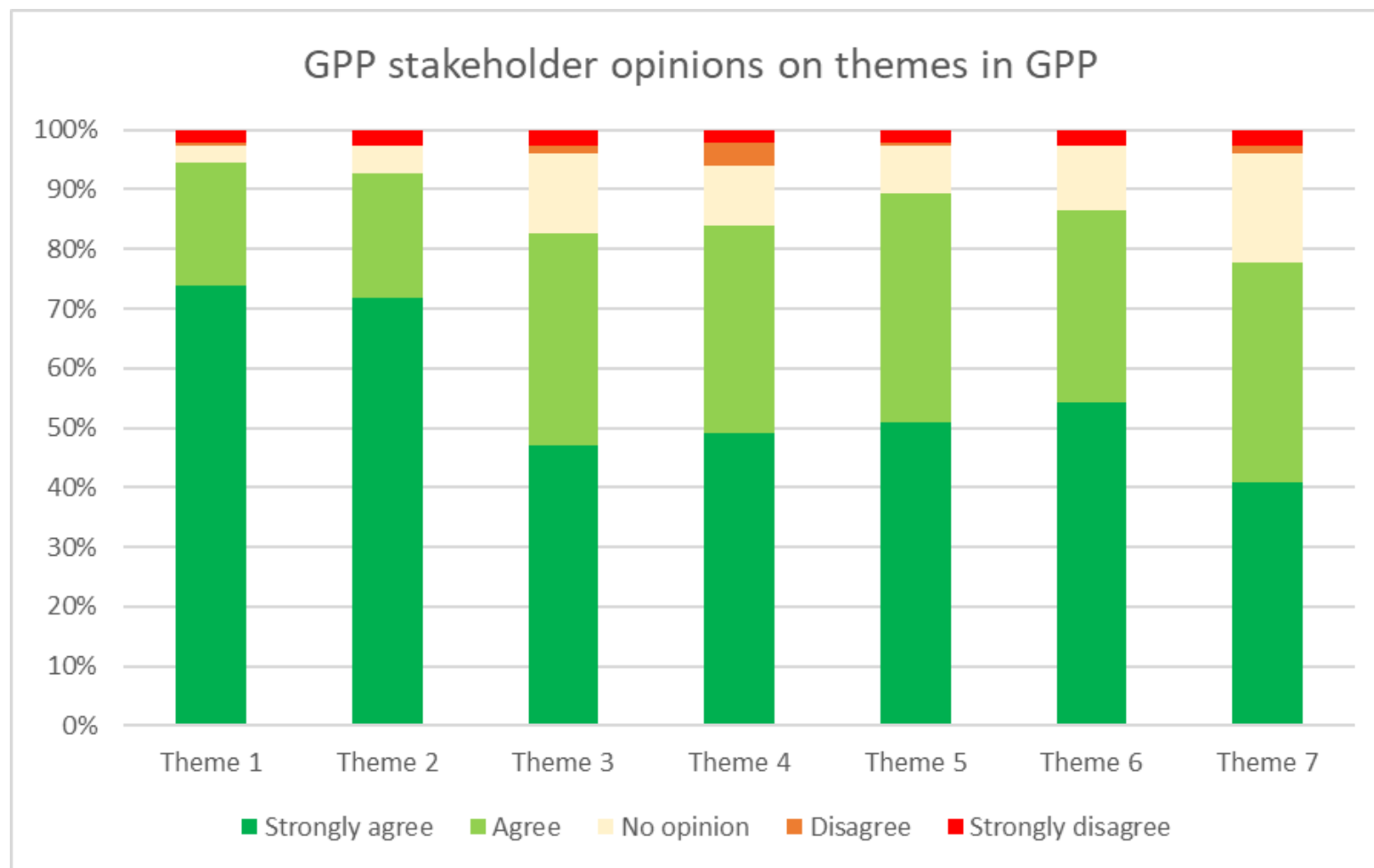
- Current criteria published in 2016.
- Since then....
 - New EN ISO standards, changes to Energy Performance of Buildings Directive (EPBD), Energy Efficiency Directive (EED), Waste Framework Directive (WFD), Green Deal, Renovation Wave, Level(s), EU Taxonomy and more...
 - COVID, huge increase in teleworking, energy price increases and high inflation bringing more people into energy poverty.
- Need to revise criteria and consider extending the scope to other types of public building (e.g. social housing and schools).
- Social housing criteria could inspire work on private residential buildings.

Background to EU GPP criteria for buildings



- Taking inspiration from Level(s), a building specific EU framework, and the EU Taxonomy, a globally reaching definition of sustainable economic activities....
- We found 7 “themes” for GPP criteria.
- Present criteria by theme
→ later organise by project type/stage.

Background to EU GPP criteria for buildings



Registered stakeholders were asked their opinions about the 7 themes being used in GPP:

- All criteria had >75% positive sentiment.
- Themes 1 and 2 on energy and carbon most popular with >90%.
- Theme 7 on biodiversity slightly less support than other themes.
- *Note: Theme 3 is on water, theme 4 on comfort and wellbeing, theme 5 on climate change resilience and theme 6 of life cycle costs.*

Background to EU GPP criteria for buildings

- How should criteria be presented in the end?
- By project stage?
 - GPP criteria for design stage, split by theme.
 - GPP criteria for site preparation stage, split by theme.
 - GPP criteria for construction stage, split by theme.
 - GPP criteria for completion stage, split by theme.
 - GPP criteria for occupancy stage, split by theme.
- By criteria theme?
 - GPP criteria for all stages for theme 1.
 - GPP criteria for all stages for theme 2.
 - Etc. etc.
- By project type?
 - GPP criteria for demolition, split by theme.
 - GPP criteria for renovation, split by theme.
 - GPP criteria for building leasing, split by theme.

Scope and definitions

- Common Procurement Vocabulary (CPV) codes reveal many different types of building that could be in scope. Main types are split as follows:

45211xxx

Houses, sheltered housing, multi-dwelling buildings, flats, multi-functional buildings, urban development

45212xxx

Buildings relating to leisure, sports, culture, lodging and restaurants.
(libraries???)

45213xxx

Commercial buildings, warehouses and industrial buildings, buildings relating to transport.
(opportunities with airports, railway stations etc. ???)

45214xxx

Kindergartens, schools, colleges, university buildings, polytechnics, lecture theatres, research centres, laboratories, testing facilities, halls of residence, training facilities

45215xxx

Buildings relating to health and social services. Many examples, of which the most relevant may be:
Subsidised residential accommodation, retirement homes, children's homes, daycare centres, civic centres.

45216xxx

Buildings relating to law and order or emergency services and the military. Many examples, of which the most relevant may be:
parliament and public assembly buildings (in order to lead by example).

- Opinions? Possible questionnaire exercise.

Scope and definitions

- Apart from building TYPES, need to consider what kinds of WORKS and SERVICES fall with the scope (e.g. onsite renewables?).
- Should some contracts be independent of main construction contractor?
 - E.g. project management services led by an independent operator.
 - E.g. building inspection services led by an independent operator.
 - One way to avoid conflict of interests in reporting mistakes.
- And definitions, how to define “major renovation”? (EPBD, EED?)
- What is the best terminology to use throughout?

Possible discussion points

- Questions, comments, opinions on the background to the EU GPP criteria?
- Questions, comments, opinions on the scope and definitions?
- Other points?

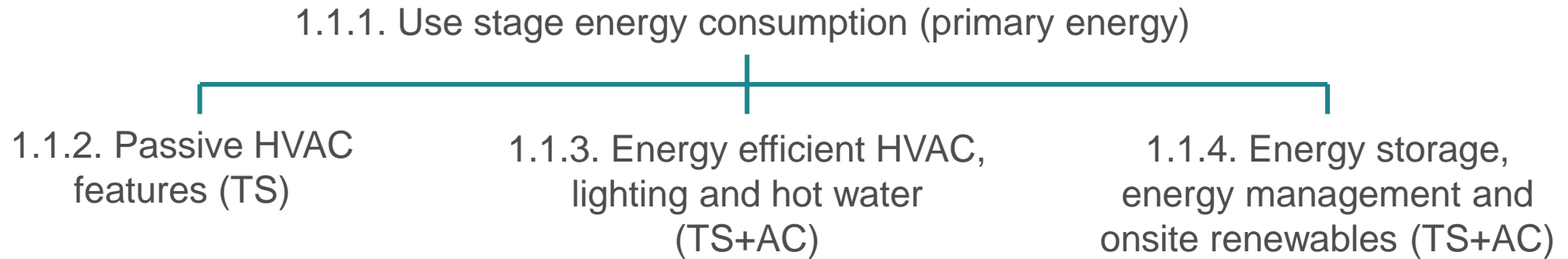
Selection criteria

A total of 5 selection criteria included:

- Competencies of project manager.
- Competencies of design team.
- Competencies of main construction contractor and specialist contractors.
- Competencies of Design-Build-Operate contractors and property developers.
- Energy Management System.

Same criteria as from 2016. Are they still relevant? Are new skills more important now? Which ones? Guidance on specific competencies for specific themes?

Theme 1.1 – Use stage energy consumption



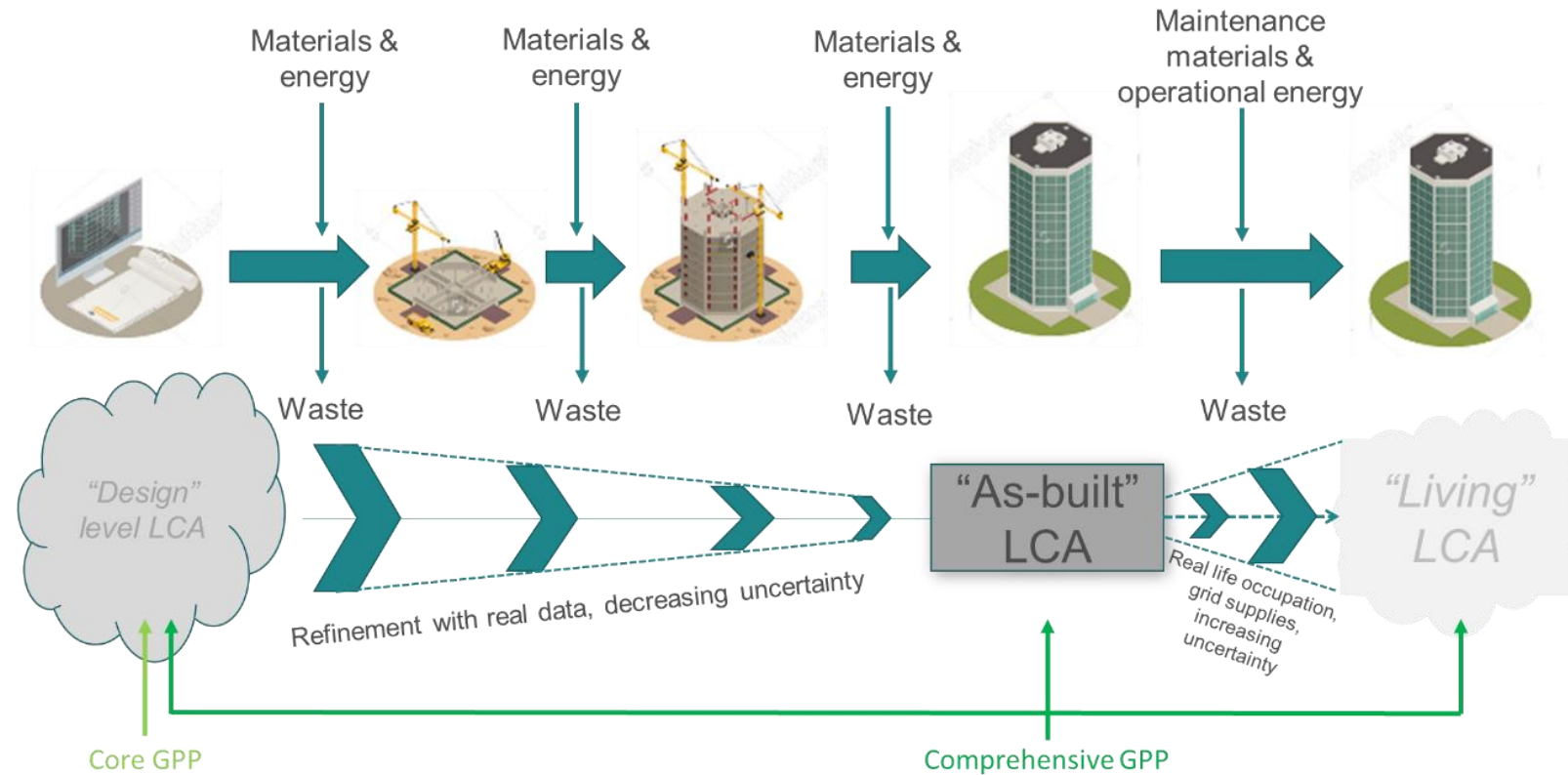
- Overall aim is to reduce specific primary energy consumption.
- Hierarchy is: use free energy first (1.1.2) > use efficient equipment second (1.1.3) > take responsibility for own energy production and optimisation of consumption third (1.1.4).
- These three criteria (1.1.2, 1.1.3 and 1.1.4) all influence the overall result for 1.1.1.

Theme 1.1 – Use stage energy consumption

Criteria summary	Rationale summary
1.1.1. Use stage primary energy: “10 or 20% better than NZEB” for new buildings. “30 or primary energy consumption” than before renovation 60% less	Core level is aligned with EU Taxonomy. Comprehensive level is twice as ambitious, but could just as well be an award criteria up to 100% reduction. Report in line with Level(s), but free to follow national methodology to avoid double work.
1.1.2. Passive HVAC: 6 specific requirements (solar gain/shading, solar water heating, heat exchangers for shower drain, cross ventilation, air tightness and thermal bridging of envelope. At comprehensive level, addition requirements for thermal conductivity of envelope, solar transmittance of windows and heat recovery from exhaust vents.	Comprehensive level requirements for thermal conductivities are very ambitious, could perhaps have been used as award criteria up to these benchmarks. More details about exact methods and standards still required.
1.1.3. Energy efficient equipment: Relates to energy classes for any relevant equipment covered by EU energy label Regulations.	Because a number of relevant product groups will be subject to rescaling, and to account for future changes in the market shares of different energy classes, a dynamic approach is used to define the required energy classes. An AC to ensure that the top class is always rewarded most.
1.1.4. Energy storage, management & onsite renewables: Onsite renewables need to meet at least 10% of needs and storage needs to be at least 2 days. Requirements also set about management system (no core and comprehensive levels, but there is an AC).	Want to encourage (but not oblige) buildings to go for up to 100% onsite renewables. Not possible for all buildings due to their nature and/or surroundings. Why TS is low at 10%, still want to encourage move to onsite renewables.

Theme 1.2 – Whole life carbon (WLC)

- WLC assessment to be done in line with Level(s).
- Matching minimum scope of elements and default service lives.
- Difference in core and comp. is illustrated here:



- WLC assessment to be done in line with Level(s).
- A number of suitable life cycle inventories and software has been flagged by the JRC.

Theme 1 – Possible discussion points

Selection criteria: Relevant skills and competencies.

Theme 1.1:

- Use of national methods for primary energy consumption minimises additional work but means results are not comparable. Could reporting via the ALDREN method be rewarded in an AC?
- What are realistic specifications for passive design.
- For energy efficient equipment, only valid if EPREL is up and running.

Theme 1.2:

- Update on what is happening at national level for WLC in buildings.
- Boundaries? Could scope be aligned with ICMS-3 cost methodology?
- EN 15798 revision? New product/material EPDs under EN 15804? Clearer guidance needed?
- **What about m2 definitions? Are they complimentary?**

Theme 2.x – Material circularity

Criteria summary	Rationale summary
2.1. Inventory of building elements etc.: For following the cost and carbon impacts of the building project. Core is just for construction (cradle to gate), while comprehensive is more about a cradle to grave approach.	This criteria is not “green” as such by itself, but the correct inventorying of materials is crucial to ensure that costs and carbon footprints are adequately registered. Procurers could make this green simply by defining a scope and limit for embodied carbon. Report in line with Level(s). What about ICMS-3?
2.2. CDEW management: To meet a number of ambitious requirements about how waste can be diverted from landfill by reuse, recycling or material recovery.	Exact requirements may be influenced later by outputs from discussions on the Circular Economy requirements for the EU Taxonomy. Reporting format is in line with Level(s).
2.3. Design for adaptability: Focuses on three main aspects: (i) changes to internal space distribution; (ii) changes to the routing or type of building services and (iii) changes to the building façade and structure.	Adaptability may be a client specification from the beginning. Can be used to maximise the beneficial use of the building floor area and adapt to changing occupant needs. A scoring system already defined in Level(s) for offices, but not defined for residential buildings.
2.4. Design for deconstruction: Focuses on for different building elements are designed for disassembly and their potential for reuse, recycling or material recovery.	Can link to BIM, building passports, material passports. In line with Level(s) scoring methodology and the general Building-As-Material-Banks concept..
2.5. Operational waste management: Waste produced onsite is collected in a segregated manner and directly brought to licensed waste management operators.	Purely a management activity, so not sure whether it belongs here. But all about taking responsibility for the buildings waste management instead of relying on municipal systems.

Theme 2 – Possible discussion points

Theme 2.1: Bill of quantities etc.

- Should The EU GPP (and Level(s)) align with the new ICMS-3 standard (different scopes and terminologies used).

Theme 2.2: CDEW management

- If trying to normalise waste produced (CDEW or municipal) what m2 is used?
- Is it reasonable to assume that no hazardous waste is recovered/recycled/reused?

Theme 2.3: Design for adaptability

- Level(s) has no adaptability scoring method for housing stock yet – want to define this for GPP. Can **accessibility** be used as a part of the overall scoring system?

Theme 2 – Possible discussion points

Theme 2.4: Design for deconstruction

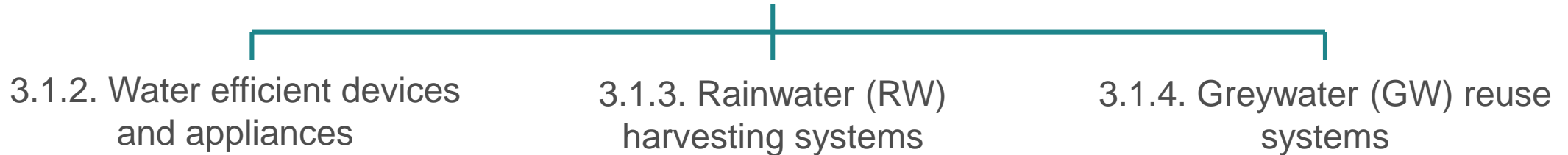
- Should GPP specify things like BIM, material passports, building passports, digital logbook or Cradle-to-Cradle certified materials as a proxy for good deconstruction potential?
- Should mechanical, dry and reversible connections be specified?

Theme 2.5: Operational waste management

- This criterion is purely management phase only and targets waste from occupation activities, not construction or renovation. Separate subject matter like cleaning services? Or public space maintenance?
- Depends on if we want to have a comprehensive set of GPP criteria here for building management or not.
- Building management criteria could easily apply to ALL public buildings.

Theme 3 – Use stage water consumption

3.1.1. Per capita potable water consumption



- Overall aim is to reduce per capita potable water consumption.
- Recommended to estimate using the Level(s) water calculator*.
- Water efficient devices → limits matched to EU taxonomy DNSH at core level.
- RW harvesting systems → use for toilets and irrigation → difference in core and comprehensive is: (i) capacity; (ii) direction of overflows and (iii) metering.
- GW reuse systems → use for toilets → difference in core and comprehensive is: (i) inputs of GW; (ii) use in irrigation; (iii) direction of overflows and (iv) metering.

Theme 3.1 – Use stage water consumption

Criteria summary	Rationale summary
3.1.1. Per person potable water consumption: 20 or 35% of potable water demand to be substituted by non-potable sources (rainwater or greywater).	Report in line with Level(s) calculator to clearly show non-potable contribution. Requires some assumptions to be defined by procurer to ensure consistent offers.
3.1.2. Water efficient devices and appliances: Limits set for taps, showerheads, urinals, toilets	Efficiency first principles. Also mean a smaller amount of RW or GW is needed to achieve a given potable water substitution %. Core level is in line with DNSH criteria from the EU Taxonomy.
3.1.3. Rainwater harvesting systems: Have storage for 15 or 21 days of normal building water use (for flushing toilets and irrigation).	Take advantage of the water that is freely supplied onsite. Can form an integral part of measures to reduce flood risk. Big underground storage capacity is the norm. Simple inlet filter may be suitable for pretreatment. Metering would allow cost:benefit analysis and size optimisation.
3.1.4. Greywater reuse systems: Collect GW from shower/bath/washbasin (light GW) or also from washing machines, dishwashers and kitchen sinks (full GW).	Essentially a cascading use of water before it leaves the building. Using it twice instead of once. Especially of interest in water scarce regions. Can be retrofitted and applied to any building, even individual flats or offices in larger blocks. Small, daily emptying storage capacity is the norm. Needs more pre-treatment than RW. Metering would allow cost:benefit analysis and size optimisation.

Theme 3 – A closer look at GW systems

- Example of taking GW from shower and bath (+ washbasin input and irrigation output for us in GPP).

- Treatment system needed (e.g. filtration).

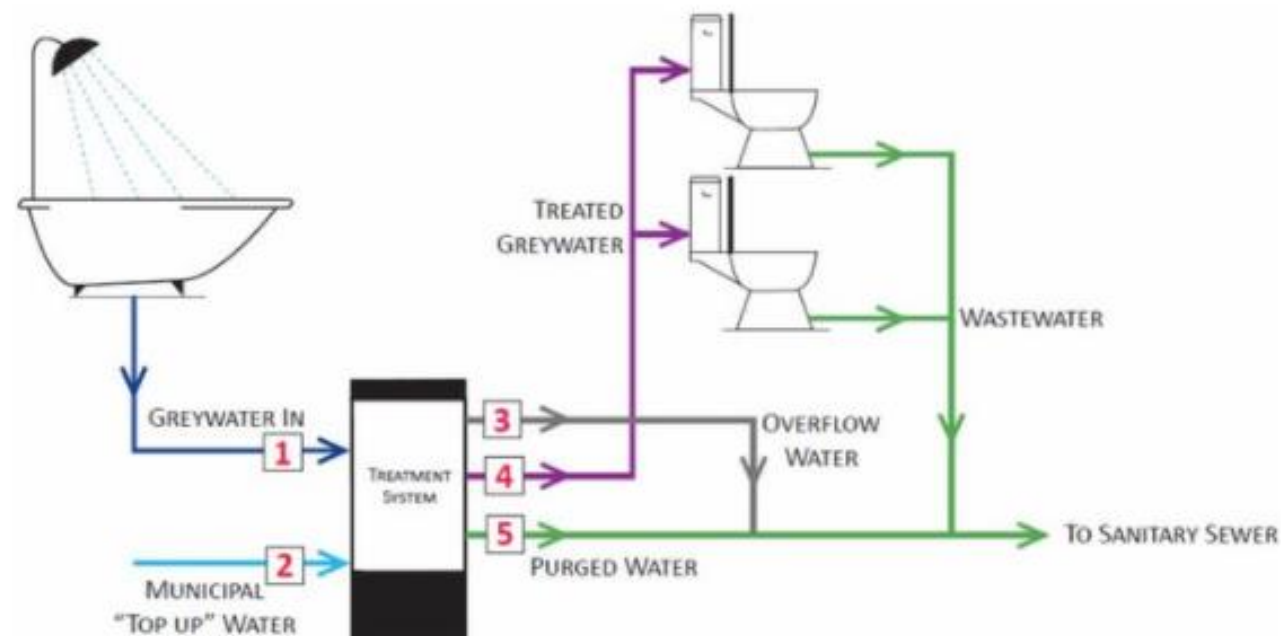
- Hydraulic residence time needs to be < 1 day.

- May need to “purge” tank (a source of consumption).

- Metering is important.

- What to measure? Most important flows are #1, #2 and #4 for assessing GW reuse. While #3 gives information about suitability of tank sizing.

- Study showed average savings of around 41 L/pe/day.



From: Craig and Richman, 2017. ...testing field performance of residential greywater reuse systems... *Journal of Water reuse and desalination*.

Theme 3 – Discussion points

- Examples of national or regional level building regulations for efficiency, GW or RW?
- Details about treatment systems for RW and especially GW. What about Sodium in GW?
- Reports and case studies of real life water consumption rates in houses, schools or offices?
- Market information and good practice guides for irrigation. What about closed loop irrigation?
- Are water pricing mechanisms inadequate? Economics of RW and GW systems and payback periods.
- GW and RW overflow to sewer? Are we missing opportunities here?
 - Consider links to criterion 5.3 on sustainable drainage systems.
 - Consider links to criterion 7.4 on landscaping and habitat creation (e.g. ponds and wetlands).

Thanks and see you tomorrow!

Contact us at:
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Theme 1 – 1.1.1 criteria text

TS1.1.1: Use stage energy consumption

Note: The final results should be reported in the format presented in the explanatory note for the sake of transparency and consistency. It is up to the contracting authority to define the scope of the assessment clearly in the call for tender.

For new construction projects: The primary energy demand of the building shall be at least **10%/20%** lower than the threshold set for nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU.

For renovation projects: The building renovation leads to a reduction of at least **30%/60%** of the primary energy demand of the building.

Verification:

For new construction projects: In addition to an Energy Performance Certificate, the design calculations for estimating primary energy demand shall be presented in accordance with the EN ISO 52000 series of standards and any related national standards.

Underlying data shall also be presented to the contracting authority in the reporting format defined for Level(s) indicator 1.1, level 2 (see explanatory note for more information).

For renovation projects: The initial (i.e. before renovation) primary energy demand and the estimated improvement after renovation shall be based on a detailed building survey, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method, and validated through an Energy Performance Certificate.

The 30% improvement results from an actual reduction in primary energy demand (where the reductions in net primary energy demand through the export of energy from onsite renewable energy systems are not taken into account), and can be achieved through a succession of measures within a maximum of three years.

Underlying data for both the initial and planned performance shall also be presented to the contracting authority in the reporting format defined for Level(s) indicator 1.1, level 2 (see explanatory note for more information).

Theme 1 – 1.1.1. Base reporting format

Explanatory note for TS1.1.1.1

The common reporting format for use stage energy consumption should be as follows:

Type of assessment		e.g. Building permit, as-built EPC or a tailored assessment								
Calculation method		Specify the method and any software tools used								
		Specify the time step for data used by the method e.g. monthly, daily, hourly								
Building service	Energy need	System efficiency ¹	Energy carrier ²	Delivered energy per energy carrier	Non-renewable primary energy factor ³		Renewable primary energy factor ³		Total primary energy factor ³	
	kWh/yr	Decimal	Free-text	kWh/yr	Decimal factor	kWh/yr	Decimal factor	kWh/yr	Decimal factor	kWh/yr
Heating										
Cooling										
Ventilation										
Hot water										
Lighting										
Other (please specify) ⁴										
Exported renewable energy ⁵	n/a	n/a								
Totals										