Electrification Challenge Rubric

This rubric is broken into phases, per the Electrification Challenge and Fellowship Milestones.

PHASE 1: Understand the Challenge and Narrow the Focus

Technical Feasibility & Safety
The narrowed challenge is appropriate for the existing technical & electrical systems, demand, and projected needs.
The narrowed challenge is responsive to the client's technical needs and limitations, as stated by the client and discovered through research.
The narrowed challenge is responsive to data gathered in research.
The narrowed challenge is informed by at least one existing ULSE safety standard relevant to existing conditions, and any other relevant national or international standards.
Environmental Sustainability & Resilience
The narrowed challenge identifies environmental and sustainability concerns that are relevant to the issue.
The narrowed challenge identifies potential future risks to “business as usual” arising from a changing climate.
The narrowed challenge is informed by ULSE sustainability standards pertaining to the focal issue.
Economic Viability
The existing and projected city budget is presented.
The narrowed challenge includes mention of any needs to secure funding and investment in this focus area.
Society & Stakeholder Impact
The narrowed challenge notes relevant zoning, legislated laws, and regulations related to electrification.
The narrowed challenge identifies key stakeholders and their roles in the system.
The narrowed challenge identifies opportunities for public engagement related to the issue (e.g., local groups).
The narrowed challenge responds to expected changes in city population or land use over the next 10, 20, and 30 years.
The narrowed challenge identifies social implications to be aware of (e.g., community support, equity, job creation).

PHASE 2: Present Focus Area, Design Possible Solutions, Converge on a Solution

Technical Feasibility & Safety
The proposed solution will meet electrical demand and projected needs and address technical limitations or constraints of the systems.
The proposed solution explains how any new technologies will integrate with existing systems.
The proposed solution addresses and mitigates possible technical failures.
The proposed solution is grounded in accurate data gathered in research or appropriate data facsimiles.
The proposed solution incorporates adherence to at least one ULSE safety standard. At least one new sustainability or safety standard is proposed.
Environmental Sustainability & Resilience
The proposed solution is responsive to current and future geographical and climatic conditions.
The proposed solution describes environmental benefits and mitigates environmental concerns over 10, 20, and 30 years, including how resource management (materials sourcing and end-of-life) impacts your plan's sustainability or safety.
The proposed solution is informed by ULSE sustainability standards pertaining to the focal issue. At least one new sustainability or safety standard is proposed.
Economic Viability
The proposed solution works within the existing and projected city budget, or describes sources of funding or investment to meet the budget.
The proposed solution addressed how changes in economic conditions could affect the plan (e.g., budget shortfalls, rising material costs).
Society & Stakeholder Impact
The proposed solution notes relevant zoning, legislative, and regulatory requirements that will impact its success.
The proposed solution identifies key stakeholders and their roles in the system.
The proposed solution addresses and identifies opportunities for public engagement related to the issue (e.g., local groups).
The proposed solution identifies social implications to be aware of (e.g., community support, equity, job creation, any societal challenges to the plan, public resistance, whether resource management (materials sourcing and end-of-life) or other sustainability or safety efforts could impact the social perceptions of the plan).

PHASE 3: Consultant Pitch

Technical Feasibility & Safety
The pitch presents the technical aspects of the plan: ● What are the pre-existing electricity sources, uses, and any pre-existing electrification efforts? ● What initial electrification changes will take place under your plan? (e.g., percent of renewable energy target, initial infrastructure developments) ● 10-year goals are stated, and comparisons to baseline are provided. Success milestones and expected outcomes of the plan are explained. Evidence needed to demonstrate projected and real success is defined for this interval. ● 20-year goals are stated, and comparisons to baseline are provided. Success milestones and expected outcomes of the plan are explained. Evidence needed to demonstrate projected and real success is defined for this interval. ● 30-year goals are stated, and comparisons to baseline are provided. Success milestones and expected outcomes of the plan are explained. Evidence needed to demonstrate projected and real success is defined for this interval.
The plan integrates electrification technologies (e.g., renewable energy, energy storage, smart grids) with existing or novel resources in a realistic way.
The plan includes data, models, or simulations supporting the proposed solution's feasibility and expected performance.
The plan includes a detailed explanation of using at least two existing and one proposed safety standard to ensure safety.
Environmental Sustainability & Resilience
The plan minimizes environmental harm and promotes sustainability (e.g., reduced emissions or energy efficiency).
The plan demonstrates resilience against future risks (e.g., climate change, grid overload, policy shifts).
The plan is scalable, adaptable, and supports sustainable city growth over 10, 20, and 30 years.
The plan includes a detailed explanation of using at least two existing and one proposed safety standard to quantify environmental sustainability, such as resource management, materials sourcing, and end-of-life or recycling efforts.
Economic Viability
A thorough cost analysis of the solution is presented, including initial investment and long-term operational costs.
The pitch presents a realistic and detailed strategy for securing funding and investments.
The projected return on investment (ROI) over 10, 20, and 30 years is calculated and supported by data or economic models.
The plan addresses financial risks (e.g., changing energy prices) and contingency plans.
Society & Stakeholder Impact

The plan uses plausible and justified city governance tools such as zoning, legislated laws and regulations, and funding to achieve its goals around full electrification.
The plan identifies key stakeholders (e.g., government, residents, utility companies), and their roles in the solution are clearly defined.
The plan includes strategies for public engagement and/or education over time.
The plan addresses the electrification solution's social implications (e.g., community support, equity, job creation).
Presentation Content - Consultant Pitch
The plan is presented clearly, well-organized, and logically structured.
Presentation identifies the specific electrification challenge (e.g., transitioning from fossil fuels to renewables, grid resilience, integrating electric vehicles into the grid, etc.)
Presentation identifies the critical factors affecting this challenge (e.g., technical constraints, regulatory policies, environmental conditions, social implications, cost, health and safety risks, etc.)
Pitch is concise, identifying what is and what is not being addressed in the pitch (e.g., energy storage solutions, grid architecture, renewable energy integration, safety standards certification, etc.)
Arguments for the plan are persuasive and backed by solid evidence and reasoning, including comparisons to baseline trends at 10, 20, and 30-year intervals.
The presentation provides a robust summary of the data implications, addressing all key areas for proceeding with the plan.
Visual aids, including charts and graphs, timelines, maps, and diagrams, are accurate, informative, and backed by data.
The presentation offers a clear call to action appropriate for the audience. Describe how the city, residents, and organizations of all kinds—commercial, institutional, or regulatory—will implement your electrification plan over the next 10, 20, and 30 years. Provide a roadmap of the key milestones.
Presentation Organization & Delivery
The presentation engages the audience (i.e., compelling visuals, telling a story of the core challenge and design, contextualized to the audience).
The presenters are clear in their delivery.
The presenters manage their available time well; the presentation is concise and leaves time for questions and discussions.
The presenters show adaptability and can address the concerns of the audience.