Arup Intial visit report

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October 19, 2017

1 What is Arup?

Arup is a construction and design company, who design almost everything including: Roads, Buildings,Electrical supplies,Power stations, etc. . . around the world.[1] They employ a wide range of people from engineers to business consultants. They have 91 offices all around the world in 39 countries (15 of which are in the UK).

2 What does Arup do?

Arup designs buildings for companies whether that be building bridges or office blocks, they will design everything from the architecture to the lighting circuit for the building and the fire safety.

3 What skills does Arup have?

Arup has access to people from everywhere in the world with a lot of fame around its name from building things such as a lot of the buildings here at sheffield uni and even the sydney opera house. From this we can tell that they have access to a lot of resources whether that be expertise from designing such complex buildings daily to favour from other companies due to their well known name throughout the building world.Arup however wouldn't on their own want to fix the problem they have given us however if they did, they themselves would have to ask another company to actually build the system but they easily could derive and design it themselves.

4 What is Arups market?

Arup targets itself to industrial style companies (those with lots of money) as an average person would never need to have a building designed and made to the level of detail Arup provides. This means they are little known to everyday people such as us but famous to companies around the world. As Arup is such a internationally known company Arup could certainly design things for any country (if you pay enough) especially given it has offices in 39 countries.

5 What have we been asked to do?

Arup have asked us to look into the mix of generation types within the UK caused by the changing policies and incentives. They have asked for us to each come out with a separate pitch for different technologies.

6 What is the real problem?

We believe instead they would like for us to find the best solution(s) to fix the supply issues with the grid by maximizing power output(bearing in mind the controllability so there isn't too much) while minimizing carbon output. As of this we have split the group giving each person some area to look into and then we will come together to find the overall best solution(s) to the problem giving us all a chance to write/talk about separate items while still working together in a group to have a final outcome for our ideas.

7   Why is this an issue for the company?

As the company gets paid to solve lots of issues from lots of different areas the company would want to solve this if another company came to them asking for them to solve their issues such as one of their clientèle e.on where Arup designed their power station with a battery storage system to take out and input power into the grid to stabilize the frequency.

8   What is the solutions environment?

As the solution to a grid issue isn't likely to be a small box implemented the solution must be able to be placed either on a pre-defined power stations land or completely away from civilization with only power connections. Therefore the system must be able to withstand average UK weather while keeping the system functioning aka must be water tight due to dealing with water and high voltages. The system must work in almost every environment from a hot humid day to a freezing cold windy day as power will always be being used.

9   Who would use the solution?

The solution could be an unmanned station with only on and off maintenance or could be a constantly manned station. It would generally be used by unskilled workers if it was constantly manned but maintenance would be carried out by skilled workers only.

10   What are the solutions constraints/restraints?

10.1   Cost

The solution hasn't got a specific price tag associated with it but it is certainly better to think about keeping the price down otherwise a company would never take up the idea nor would it be very challenging to find a solution.

10.2   Size/Weight

Once again the destination isn't determined and may well depend upon the outcome of the best solution but once again it would be rather ridiculous if we were to assume a enormous or miniature area.Weight on the other hand is likely not to matter at all as the solution is likely a free standing building

10.3   Ethics

Ethically there aren't many issues that can directly be effected by the solution that can't be changed as the only main issues could be the placement of the solution destruction habitats or annoying locals.Ethically however the solution should have as little carbon output as possible but companies are more likely to follow this due to hefty bills from carbon output.

10.4   Lifetime

The system should live long enough that the solution doesn't constantly need upgrading and changing but we know nothing will last forever and so maintenance will certainly be needed to fix components that may wear out over time so the system doesn't randomly cut out or possibly cause a fault that could kill someone.

References

[1] Unknown, "Arup,our-firm." Web-Page, Oct. 2017.