

BA (HONS) Business Management

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Module Code: LCBB5005

Course Name: Project Management

Assessment Title: Assessment 1

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Session: June 2023 Term 2

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INTRODUCTION

The most impressive project in the United Kingdom is represented by Hinkley Point C in Somerset, a nuclear power plant that will provide low-carbon electricity.



Figure 1: Hinkley Point C supporting the environment (Source: EDF, ND)

With Hinkley Point C in the United Kingdom, we are not only talking about a colossal project with estimated costs of £26 billion but also about supporting electricity for approximately 6 million homes, reducing carbon emissions, and creating numerous job opportunities, which would boost the economy in the United Kingdom (EDF, 2015).

Hinkley Point had two initial plans, Hinkley Point A, which operated from 1965 to 2000, and Hinkley Point B, which was commissioned in 1976 and is scheduled for decommissioning in 2023 (NSE, 2023).

The story of Hinkley Point C began in 2008 when the government decided to support the construction of the power plant (BBC, 2008). It was anticipated that by the year 2020, the United Kingdom would benefit from the electricity produced by Hinkley Point C. However, things were

delayed as the construction faced many challenges, from the Covid-19 pandemic to a significant increase in costs, and even investigations into the state aid approval process. The project was approved in September 2016, and construction began in 2017, with the expected operational date set for June 2027 (NSE, 2023).

In this essay, we will analyze and discuss what went wrong and how to avoid history from repeating itself. The analysis involves a critical evaluation aiming to address the following essential characteristics: Budget, Schedule, Risk factors, Quality, and Stakeholder analysis.

Hinkley Point C Budget

For Hinkley Point C, significant attention was given, and a budget estimated between 25 and 26 billion pounds was allocated, according to EDF. Costs started to rise after the project began in 2017. While in most projects, especially large ones, costs can fluctuate in reality, the expenses exceeded expectations.

In the United Kingdom, the construction of Hinkley Point Power Station was declared a controversial investment due to costs surpassing 30 billion pounds. Initial budget increases were observed since the beginning of construction in 2017, as highlighted by the Public Accounts Committee (PAC), stating that "the expansion of the Hinkley Point facility had a flawed strategy."

Investment costs stirred controversies as the estimated cost in 2016 was around 18 billion pounds, but just a year later, when construction started, the costs escalated by 1.6 billion pounds, and the project's completion date was set for 2025 (MarketLine, October 2019). In 2022, the project's completion date was revised to 2027, with a budget estimated between 25 and 26 billion pounds. Despite the considerable budget increase, EDF stated that costs for consumers would not rise (BBC, 2022).

What were the main factors that led to the significant budget increases?

The evolution of the Hinkley Point C project has faced several delays, with multiple factors contributing to them. Each delay has resulted in a massive budget increase. According to EDF's press release in May 2022, without a new pandemic wave and unaffected by the conflict in Ukraine, Unit 1 of the project could be completed by June 2027, while for the other two units, a delay of up to 15 months was assumed.

Although the Covid-19 pandemic was a factor that caused deficiencies, the project was not halted. There was a shortage of personnel, resources, and materials that increased the costs (EDF Press release, May 2022).

Both the engineering complexity of a megaproject like Hinkley Point C and Brexit were risks that caused an implicit extension of the completion time and, consequently, increased costs. Additionally, project authorizations faced slow approval processes (Reuters, 2022).

The costs have risen directly in proportion to the delays. Labor costs, the Covid-19 pandemic, Brexit, project complexity, legislation, and project authorizations – all of these factors have led to significant budget overruns.

Time management - Hinkley Point C

For a project to be efficient, proposed timelines must be adhered to. Any deviation from the deadlines leads to project uncertainty, inefficiency, and financial losses.

Hinkley Point C project has a strict schedule, but there have been errors due to labor force issues and unforeseen events (COVID-19, Brexit, Ukrainian conflict).



Figure 2: Plan Schedule Management (Source: PMBOK Guide, 2013)

Why did the Hinkley Point C project have long delays?

Projects can be rejected when proposed due to licensing and legal regulations. Any non-compliance with rules and norms can lead to project rejection.

Another cause of delays can be technical issues. Hinkley Point C is a megaproject, and numerous engineering obstacles have arisen. To resolve such problems, significant efforts, labor force, and costs are required.

As a large-scale project, there are many investors involved, each bringing their own ideas, which can create blockages.

The consequences of delays

Any delay has negative effects on the entire project and can lead to exceeding the project completion date. For Hinkley Point C, which aims to provide low-carbon electricity, delays have caused discomfort and reduced confidence, as the objective could not be achieved on time.

As analyzed above, the budget was affected. The estimated costs at the beginning were significantly higher until the project commenced, and they continued to increase during the construction phase.

Considering the extended project completion time, the promised job opportunities that come with the completion of Hinkley Point C are delayed. It is crucial to implement mitigation measures and improve time management.

To prevent delays, it is essential to monitor other similar projects like Flamanville, France, and Olkiluoto, Finland. Learn from mistakes and successes: avoid mistakes and replicate successful approaches. The shorter the delays, the more successful the project becomes.

Risk management

A megaproject like Hinkley Point C requires feasibility studies and hiring the best experts in the field to minimize technical risks.

Risks can be mitigated by identifying potential risks at the beginning of the project.

Due to the major risks associated with a nuclear power plant, there have been protests against EDF and the construction of Hinkley Point C in Somerset, the United Kingdom. "Nuclear power producers are strictly regulated by governmental bodies through licensing, inspection, and enforcement of their requirements to ensure public health and safety. Nuclear technology has a long history of potentially catastrophic incidents if mismanaged, and today's public opinion is rarely overwhelmingly positive as a result. This general public mistrust can often manifest in direct actions by protest groups to prevent nuclear facilities from operating or being constructed." (MarketLine Industry Profile Global Nuclear Energy January 2023, p.21)

A nuclear power plant can have numerous technical risks due to the complexity of engineering, and any unforeseen event that disrupts the construction can turn into a catastrophe.

Another risk factor for such a project is the high costs caused by material expenses or other economic factors, such as the Covid-19 pandemic and/or Brexit.



Figure 2: Risk Management (Source: Starting Out in Project Management,2018)

The risk register prevents certain possible risk factors. Through such a tool, risks are described, and their impact on the project is analyzed.

Risk management should not be limited to the design phase or specific points in the project but should be carried out during project definition and throughout its duration. The project manager is primarily responsible for managing risks, but it is not always possible to prevent every incident from occurring. (Simon, Peter, 2018)

Quality Management

The Hinkley Point C nuclear power plant has been designed to meet all quality and safety standards, with all necessary control measures and standards in place.

As mentioned in the PMBOK Guide, quality management aims to eliminate errors and focuses on the following aspects in relation to the Hinkley Point C project:

Customer satisfaction: Hinkley Point C is intended to provide low-carbon electricity, fulfilling the customers' need for reduced carbon emissions and environmentally-friendly energy.

Prevention over inspection: Hinkley Point C does not rely solely on quality inspections but incorporates quality planning and integration throughout the project, especially considering its large-scale nature. This approach aligns with the PMBOK Guide, which emphasizes that the cost of preventing quality errors is lower than the cost of rectifying errors after inspections.

Continuous improvement: The project follows the Plan-Do-Check-Act cycle, aiming for continuous improvement throughout its execution.

Management Responsibility: The project team members of Hinkley Point C are responsible for the project and provide the necessary resources.

Cost of quality: This refers to both the costs of conformance and non-conformance. One of the reasons for budget increases in Hinkley Point C can be attributed to the high cost of skilled labor and erroneous decisions concerning operational costs (PMBOK Guide, 2013).

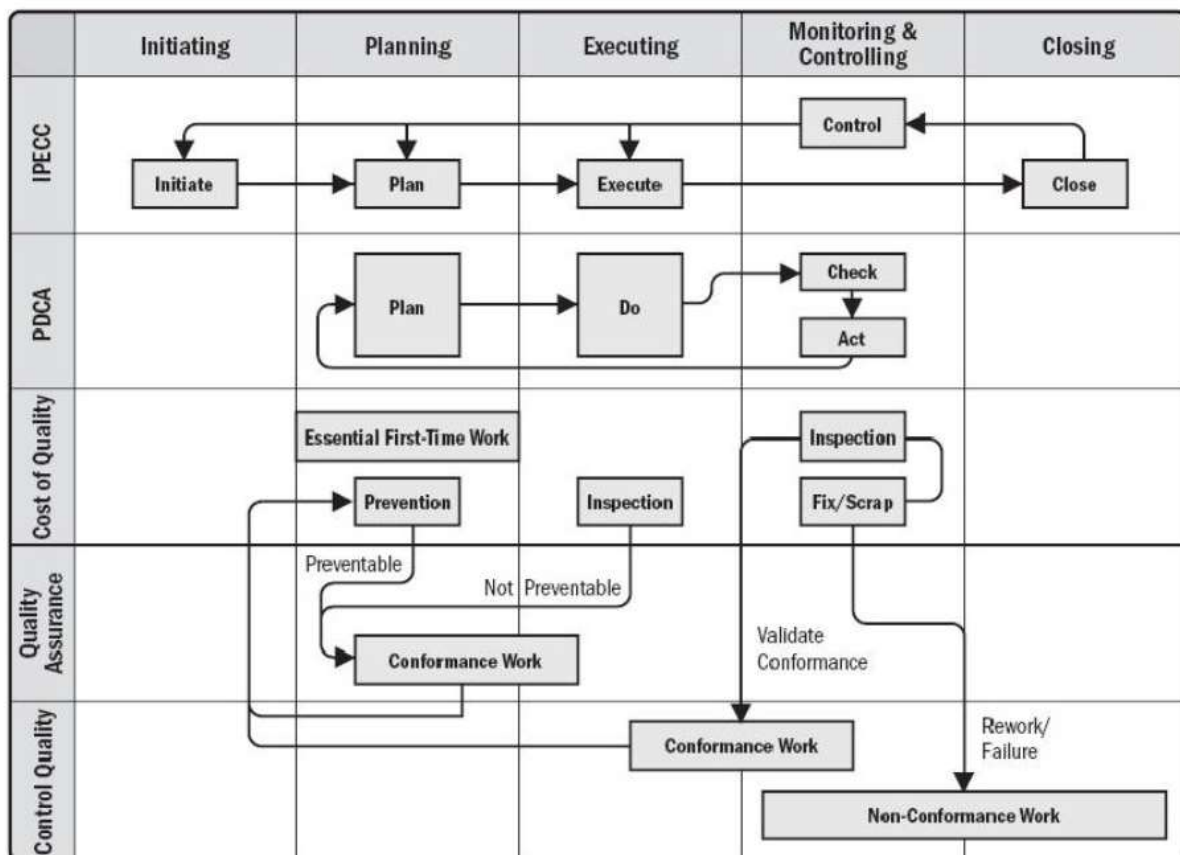


Figure 3: “Fundamental Relationship of Quality Assurance and Control Quality” (Source: PMBOK Guide, 2013)

During the construction of Hinkley Point C, quality checks should be carried out on materials used, safety standards, and construction methods (Somerset Council, 2023). If the nuclear power plant has quality issues, it not only affects the project, work, and invested funds, but also poses a risk to people's lives. It is essential to adhere to all safety, protection, and quality standards.

Stakeholder Management

Stakeholders are individuals, groups, and organizations that make decisions, have a significant impact on the project, and can propose changes based on the analysis of information, laws, and interests. Identifying stakeholders can have a direct impact on project success. “The key benefit of this process is that it allows the project manager to identify the appropriate focus for each stakeholder or group of stakeholders” (A Guide to the Project Management Body of Knowledge, 2013, p.391).

When we talk about a massive project like Hinkley Point C, we understand that there are numerous stakeholders involved. Each conflict among stakeholders leads to additional costs, time wasted, and consumed resources. However, if the government and the community are in agreement, and both parties desire the project to be completed smoothly, quickly, with optimal costs and quality, then the project can progress successfully.

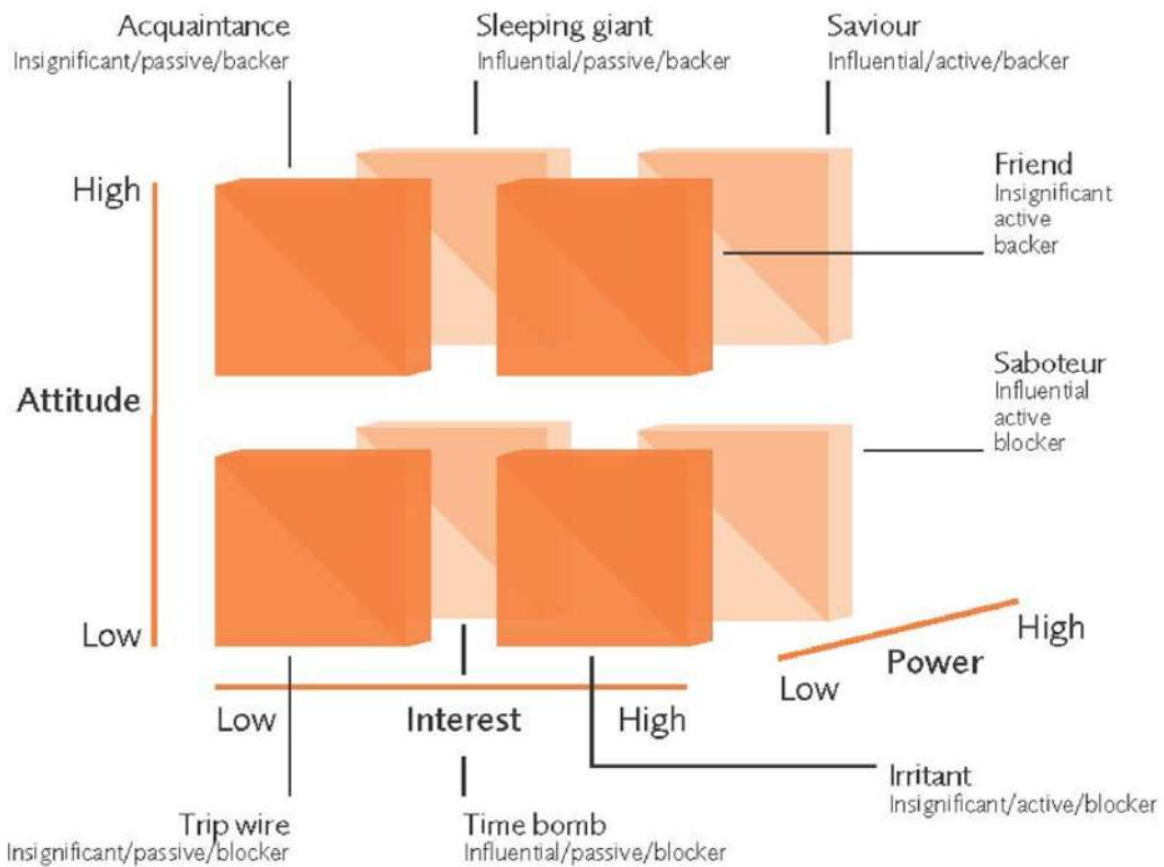


Figure 4: Stakeholder cube (Source: Starting Out in Project Management, 2018)

As reflected in the Stakeholder cube, outlined in "Starting Out in Project Management," we can understand the interest, attitude, and influence of stakeholders towards Hinkley Point C.

Analysis of the Project Plan - Hinkley Point C

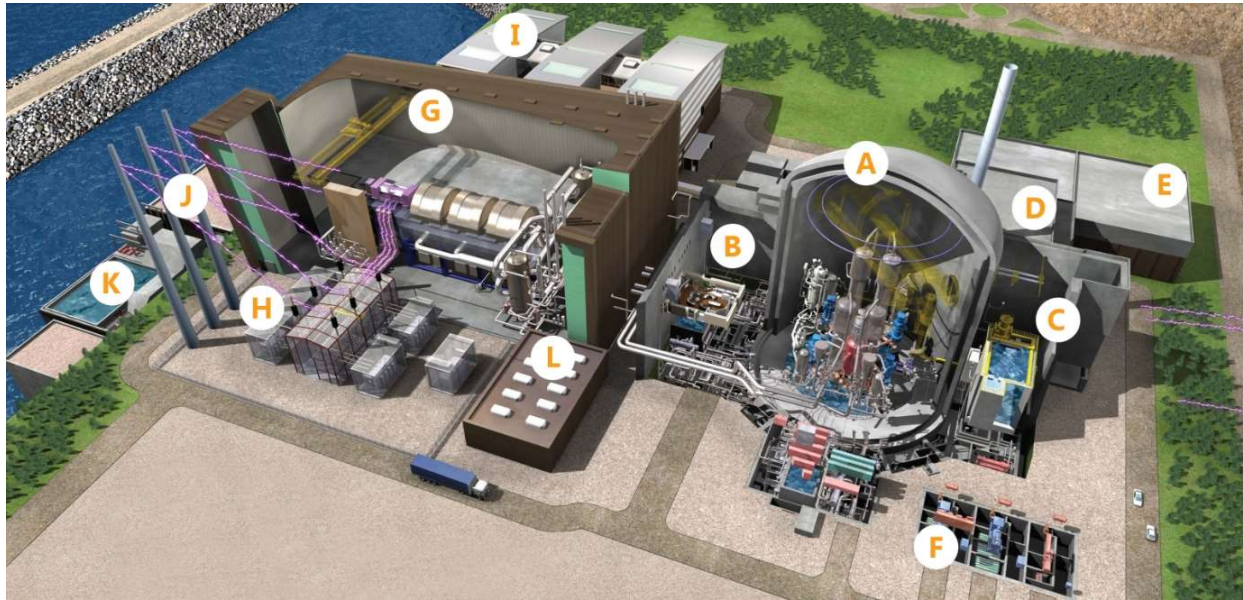


Figure 5: Hinkley Point C Project (Source: EDF,ND)

"A: Reactor building

G: Turbine building

B: Four safeguard buildings

I: Operator building

C: Fuel Building

J: Pumphouse building

D: Nuclear auxiliary building

K: Outfall structure

E: Radioactive waste processing building

L: Conventional electrical building

F: Emergency diesel generator building

H: Power transmission platform"

The strengths of the Hinkley Point C project lie in its strategy, which ensures environmental protection through low-carbon electricity generation. Additionally, the project creates job opportunities, supports the economy, and gains support from all interested parties.

According to EDF, 850,000 hours of engineering studies were allocated for the development of the Hinkley Point C plan, resulting in the approval of one of the largest projects within four years. For safety, four systems are utilized to protect against unfavorable events such as earthquakes and floods (EDF, 2023).

The weaknesses are related to design times, prolonged delays, rapidly escalating costs, risks associated with constructing such a power plant, and the uncertainty the project brings.

The project's weaknesses stem from technical challenges, regulations, and risks.

Conclusions

In conclusion, the Hinkley Point C project is one of the largest in the UK, and its benefits will be felt at the governmental, community, and environmental levels. The power plant aims to support low-carbon electricity, closely linked to environmental protection. Upon completion, millions of homes will benefit from electricity, job opportunities will be generated, and it will stimulate economic growth.

The Hinkley Point C project faced two interrelated problems: delays and significant budget increases. By carefully analyzing the Budget, allocated timelines, stakeholders, and risk factors and employing a well-structured project management strategy, potential delays can be avoided. The creation of a risk register to describe and analyze any potential issues can help prevent errors.

The history of already completed nuclear power plants should be carefully analyzed to avoid the failures they encountered. With Hinkley Point C, the United Kingdom can have one of the world's largest low-carbon nuclear power plants, bringing benefits to the community, government, and the environment.

The mistakes made in the Hinkley Point C project are a valuable experience that the United Kingdom will not repeat, and it serves as a domain to study for future nuclear projects.

Recommendations

The Hinkley Point C project has faced many challenges and received numerous criticisms and doubts.

Increased attention to risks is recommended. By creating a risk register, potential issues can be evaluated, and suggestions for addressing any problems that may arise should be defined.

Stakeholders should share the same interests. I propose dialogues and communications that address all stakeholders.

The budget needs to be better analyzed, and realistic budget growth margins should be ensured. Costs should be analyzed based on risks, as higher project risks can lead to increased costs.

Unjustified delays must be prevented. The Hinkley Point C project suffered greatly due to delays, and even during the Covid-19 pandemic, although work continued intensively, there was an insufficient workforce, and material deliveries were affected, leading to higher costs than if the work had been halted. Decisions should be based on multiple factors, including material availability and efficiency.

Nuclear specialists should have been better initiated and integrated into the Hinkley Point C project. Significant investments in qualified labor are essential. A project of this magnitude requires support from skilled and specialized individuals who cannot afford to make errors.

Reference list

BBC News (2010), "New nuclear plants get go-ahead", Available at:http://news.bbc.co.uk/2/hi/uk_news/politics/7179579.stm [Accessed: 29 July 2022]

BBC News (2022), Hinkley Point C delayed by a year as cost goes up by £3bn, Available at:<https://www.bbc.com/news/uk-england-somerset-61519609> [Accessed: 30 July 2022]

EDF- edfenergy.com, About Hinkley Point C, Available at:<https://www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c/about> [Accessed: 29 July 2022]

EDF Press release (2022), Available at:<https://www.edf.fr/en/the-edf-group/dedicated-sections/journalists/all-press-releases/hinkley-point-c-update-0> [Accessed: 30 July 2022]

MarketLine (2022), Hinkley Point C Update, Available at:<https://www.edf.fr/en/the-edf-group/dedicated-sections/journalists/all-press-releases/hinkley-point-c-update-0> [Accessed: 29 July 2022]

MarketLine(2020), Industry Profile Civil Engineering in the United Kingdom, Available at:<https://advantage-marketline-com.ezproxy.uwtsd.ac.uk/Analysis/ViewasPDF/united-kingdom-civil-engineering-93820> [Accessed: 29 July 2022]

MarketLine (2023), Industry Profile Global Nuclear Energy, Available at:<https://advantage-marketline-com.ezproxy.uwtsd.ac.uk/Analysis/ViewasPDF/global-nuclear-energy-169189> [Accessed: 29 July 2022]

MarketLine (2019), Hinkley Point C: Delays and overpayments in practice . Available at:<https://advantage-marketline-com.ezproxy.uwtsd.ac.uk/Analysis/ViewasPDF/hinkley-point-c-delays-and-overpayments-in-practice-88241> [Accessed: 30 July 2022]

NS Energy (2023) Hinkley Point C Nuclear Power Station. Available at:<https://www.nsenegybusiness.com/projects/hinkley-point-c-nuclear-power-station-uk/> [Accessed: 30 July 2022]

PMBOK Guide (2013), A Guide to the Project Management Body of Knowledge. Available at: <https://whelf->

uwtsd.alma.exlibrisgroup.com/leganto/public/44WHELF_UWTSD/citation/6569179940002421?auth=SA
ML [Accessed: 30 July 2022]

Reuters, 2022, EDF to announce new cost increase, delay for Hinkley Point nuclear plant. Available at:
<https://www.reuters.com/business/energy/edf-announce-new-cost-increase-delay-hinkley-point-nuclear-plant-2022-03-28/> [Accessed: 31 July 2022]

Simon, Peter (2018), Starting out in project management. Available at:https://whelf-uwtsd.alma.exlibrisgroup.com/leganto/public/44WHELF_UWTSD/citation/6569179360002421?auth=SA
ML [Accessed: 30 July 2022]

Somerset Council (2023) *Hinkley Point C*. Available at:<https://www.somerset.gov.uk/business-economy-and-licences/major-developments/hinkley-point-c/>. [Accessed: 30 July 2022]

