

THE FOX ISLANDS WIND PROJECT



MEET OUR TEAM



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Agenda Overview



01

**Project Sponsor Organization
Background**

02

Project Background

03

**Benefits to Sponsor
Organization**

04

Project Objectives

05

**Major Deliverables and Sub-
deliverables**

06

Summary Budget

07

Summary Schedule

08

Quality Requirements

9-10

Project Failures I & II

Project Sponsor Organization Background

Fox Islands Electric Cooperative (FIEC):

- A community-owned transmission and distribution cooperative established in 1974.
- It serves the Fox Islands of North Haven and Vinalhaven, which are located off the coast of Maine.
- FIEC purchased electricity from the New England Grid and handled the local distribution network, which included a submarine electric cable between the islands and the mainland.





Project Background



Energy Challenge:

- Electricity prices on the Fox Islands reached \$0.29/kWh, primarily due to high delivery charges and limited customers to absorb costs.
- The high cost of electricity threatened the sustainability of the year-round community. As a result, FIEC sought alternative energy solutions.

Genesis of the Project:

- Research into wind energy started in 2001 with a three-year wind speed study conducted by the University of Massachusetts Renewable Energy Research Laboratory.
- In 2008, community members voted overwhelmingly to support the wind project (384 to 5 votes), giving it the green light to proceed.

Project Concept:

The project aims to build three 1.5 MW wind turbines that could generate enough electricity to cover more than half of the island's electricity needs annually.

Benefits to Sponsor Organization

Reduced Electricity Costs:

- The wind project is expected to lower electricity costs from \$0.29/kWh to approximately \$0.05/kWh.
- This would significantly improve the financial stability of residents, which is more sensitive to electricity costs than the wealthier seasonal residents.

Energy Independence:

- The project will allow the community to generate a large portion of its electricity locally, reducing dependence on imported electricity and offering long-term savings.
- Reducing reliance on the mainland grid and vulnerability to fluctuating energy prices.

Sustainability and Pride:

- Aiming to appeal the residents' sense of environmental responsibility. Hoping Seasonal residents will be drawn to the sustainability aspect of the project
- Help reduce the carbon footprint associated with electricity consumption on the islands



H₂O

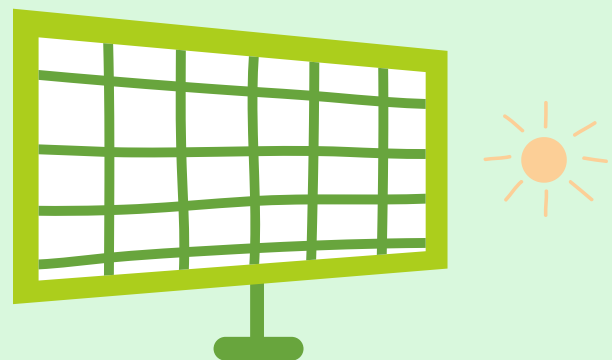
Project Objectives

Primary Objectives:

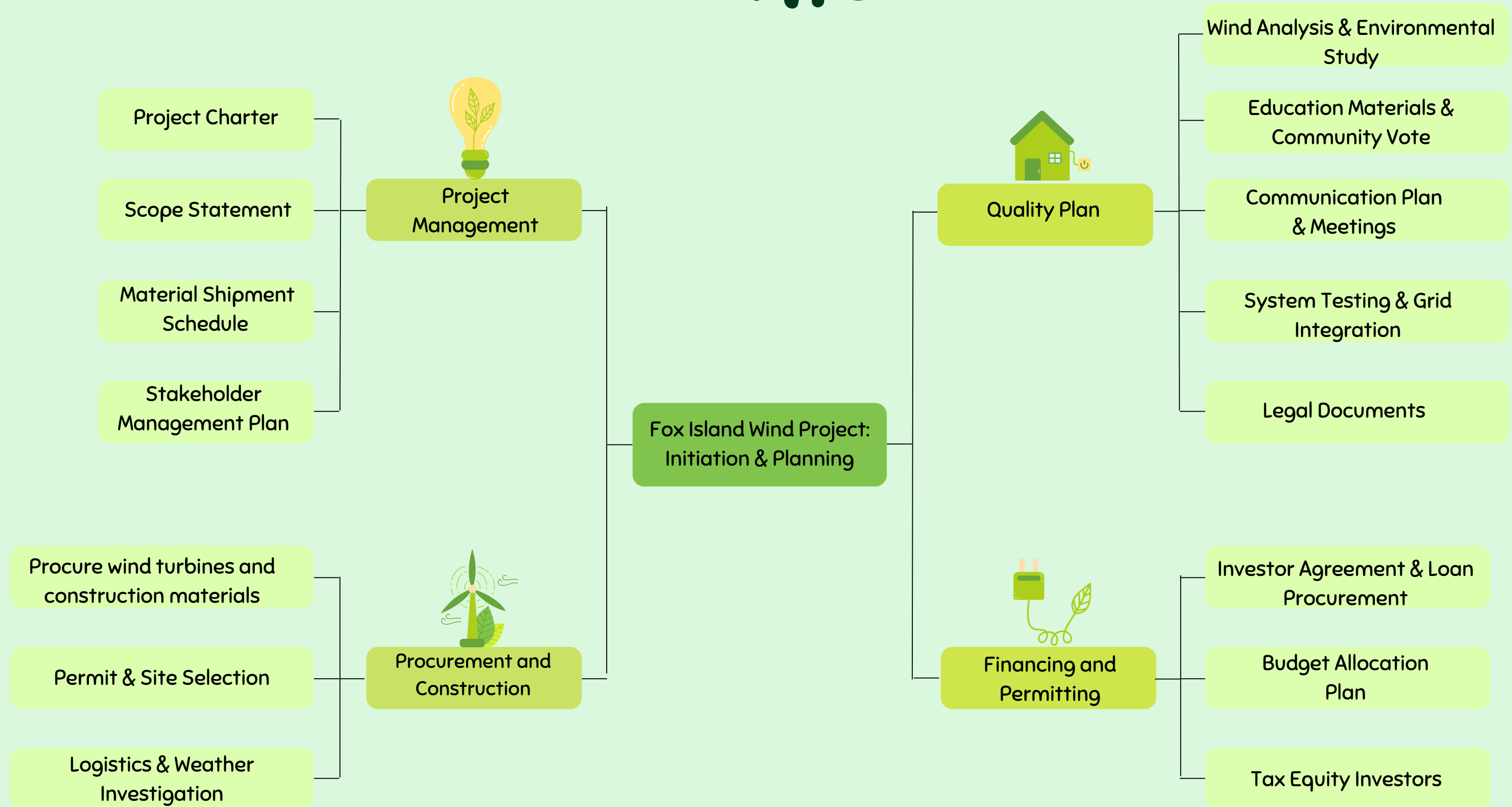
- Lower the electricity cost for island residents by generating local wind energy.
- Create a sustainable energy model for small island communities.

Secondary Objectives:

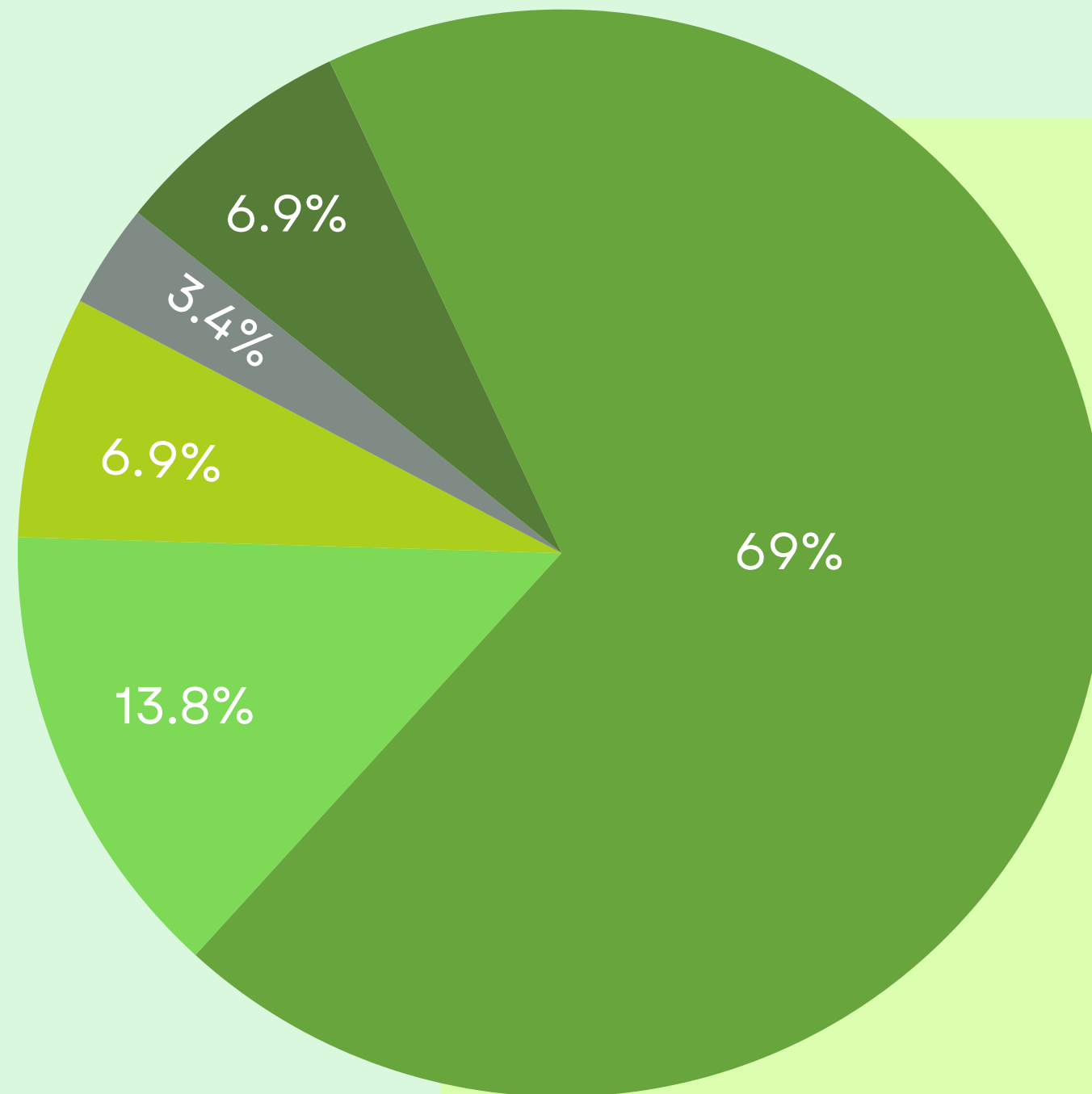
- Sell excess energy to the mainland during off-peak times to further reduce costs.
- Establish the Fox Islands Wind Project as a template for other island communities to follow.



Major Deliverable and sub-deliverable



Summary Budget



WIND TURBINE EQUIPMENT AND INSTALLATION

The largest portion of the budget, covering the purchase and installation of three General Electric wind turbines. Approximate cost: \$10 million

SITE PREPARATION AND CONSTRUCTION

Costs related to preparing the site for turbine installation, such as clearing land, constructing roads, and laying foundations. Approximate cost: \$2 million

ELECTRICAL GRID INTEGRATION

Connecting the wind turbines to the existing electrical grid, including upgrading transmission lines and installing substations. Approximate cost: \$1 million

ENVIRONMENTAL AND PERMITTING COSTS

Environmental assessments, legal fees, and costs associated with obtaining local, state, and federal permits. Approximate cost: \$500,000

CONTINGENCIES AND MISCELLANEOUS

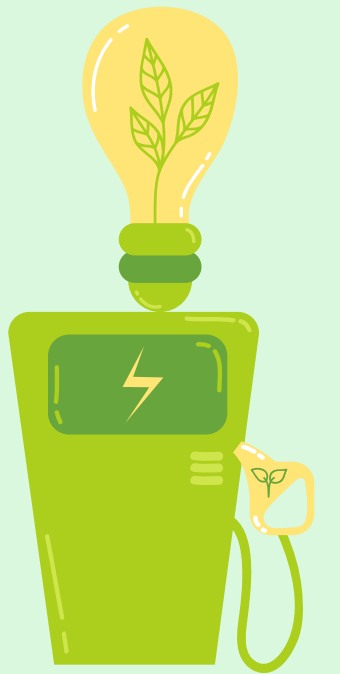
Funds that set aside for unexpected costs, project management, logistics, and miscellaneous expenses. Approximate cost: \$1 million

| Week | Task | Responsible Stakeholder | Status |
|---------|------------------------------------|-------------------------|-------------|
| Week 1 | Draft Project Charter | Project Manager | In Progress |
| Week 2 | Finalize Scope Statement | Project Manager | In Progress |
| Week 3 | Plan Material Shipment | Logistics Manager | Not Started |
| Week 4 | Create Project Schedule | Scheduler/Planner | In Progress |
| Week 5 | Draft Stakeholder Management Plan | Stakeholder Manager | In Progress |
| Week 6 | Secure Required Permits | Legal Team | Pending |
| Week 7 | Conduct Site Selection | Site Manager | In Progress |
| Week 8 | Conduct Weather Study | Environmental Scientist | In Progress |
| Week 9 | Set Up Project Management Software | Project Manager | In Progress |
| Week 10 | Finalize Project Location | Project Manager | In Progress |
| Week 11 | Hold Community Town Halls | Communications Officer | In Progress |
| Week 12 | Finalize Financing and Permits | CFO / Legal Team | In Progress |
| Week 13 | Create Communication Plan | Communications Officer | In Progress |
| Week 14 | Prepare Educational Materials | Communications Officer | Not Started |
| Week 15 | Schedule Key Meetings | Project Manager | In Progress |
| Week 16 | Hold Community Vote | Project Manager | Not Started |
| Week 17 | Finalize Legal Agreements | Legal Team | In Progress |
| Week 18 | Secure Investor Agreement | CFO | In Progress |
| Week 19 | Allocate Budget Resources | CFO | In Progress |
| Week 20 | Secure Final Budget Approval | CFO | Pending |

Summary Schedule



Quality Requirements



Noise Levels: The project is required to meet noise limits according to Maine's Department of Environmental Protection: 60 dBA (decibels) during day time and 50 dBA during night time.

Environmental Impact: We will assess the project's environmental impact to minimize disruptions to Fox Island's local ecology.

Community Satisfaction: We will list concerns regarding noise pollution that to be worked out for the community after construction will complete.

Reliability of Turbines: The turbines need to meet performance expectations, with a target of generating approx. 11,600 MWh per year and to handle island weather conditions.

Quality Planning

- Define quality standards based on stakeholder expectations and regulations.
- Identify quality metrics: Noise levels, environmental impact, and community satisfaction.

Quality Assurance

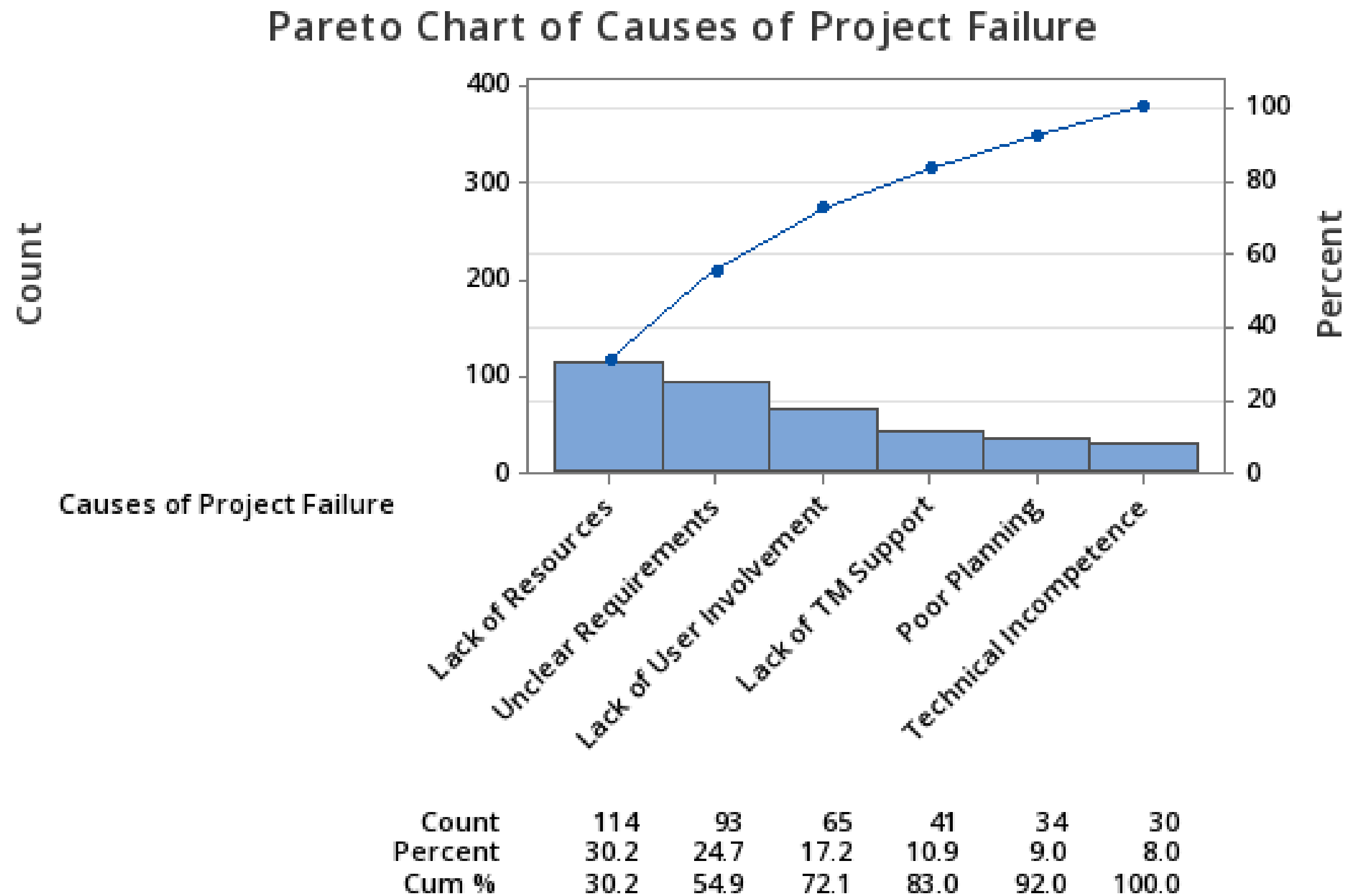
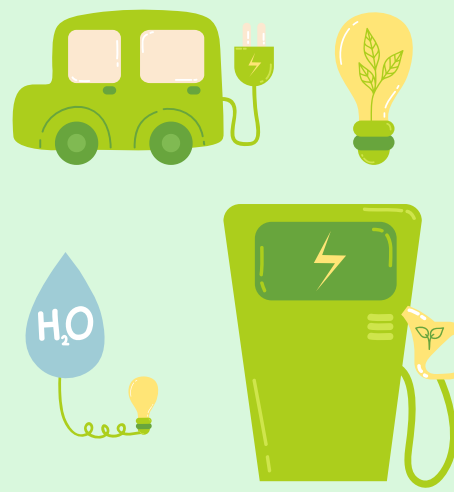
- Conduct regular training on compliance and quality standards.
- Implement internal audits for adherence to the quality plan.
- Schedule quarterly reviews of quality performance.

Quality Control

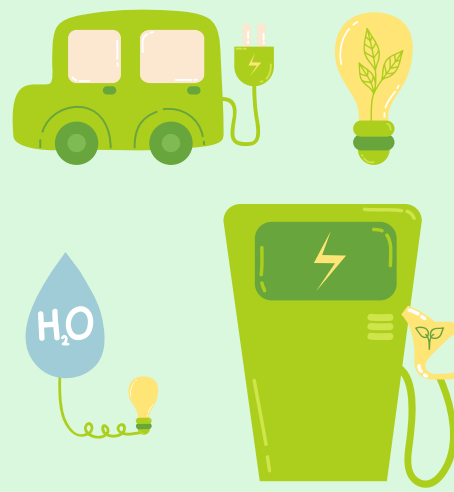
- Monitor and measure project outputs against defined quality standards.
- Monitor noise levels and conduct environmental audits.
- Analyze community feedback and address concerns.
- Use statistical process control (SPC) charts to track metrics over time.



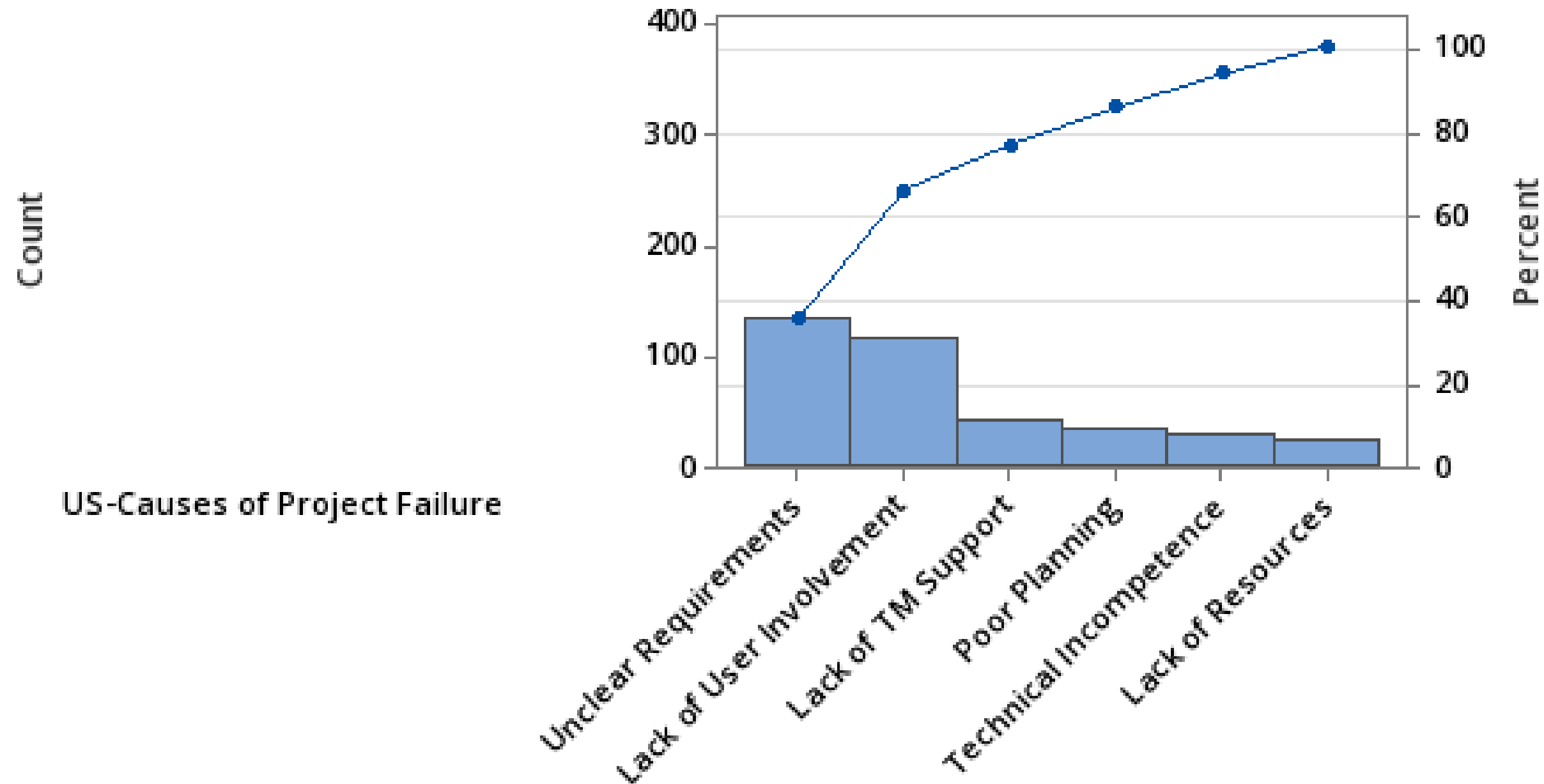
Causes of project failure



Causes of project failure



Pareto Chart of US-Causes of Project Failure



| | | | | | | |
|---------|------|------|------|------|------|-------|
| Count | 133 | 115 | 41 | 34 | 30 | 24 |
| Percent | 35.3 | 30.5 | 10.9 | 9.0 | 8.0 | 6.4 |
| Cum % | 35.3 | 65.8 | 76.7 | 85.7 | 93.6 | 100.0 |

Application to Quality Planning

A. Resource Allocation and Planning

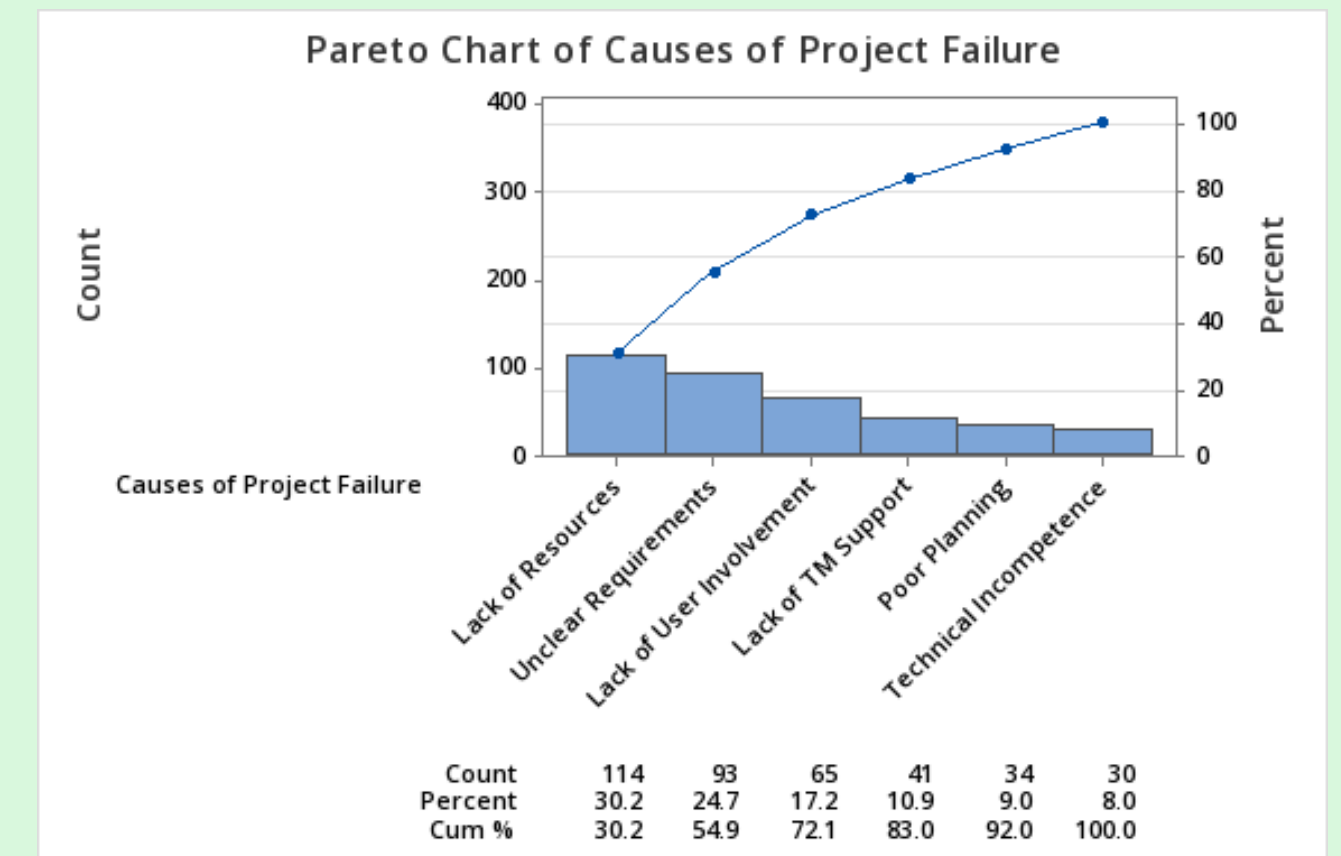
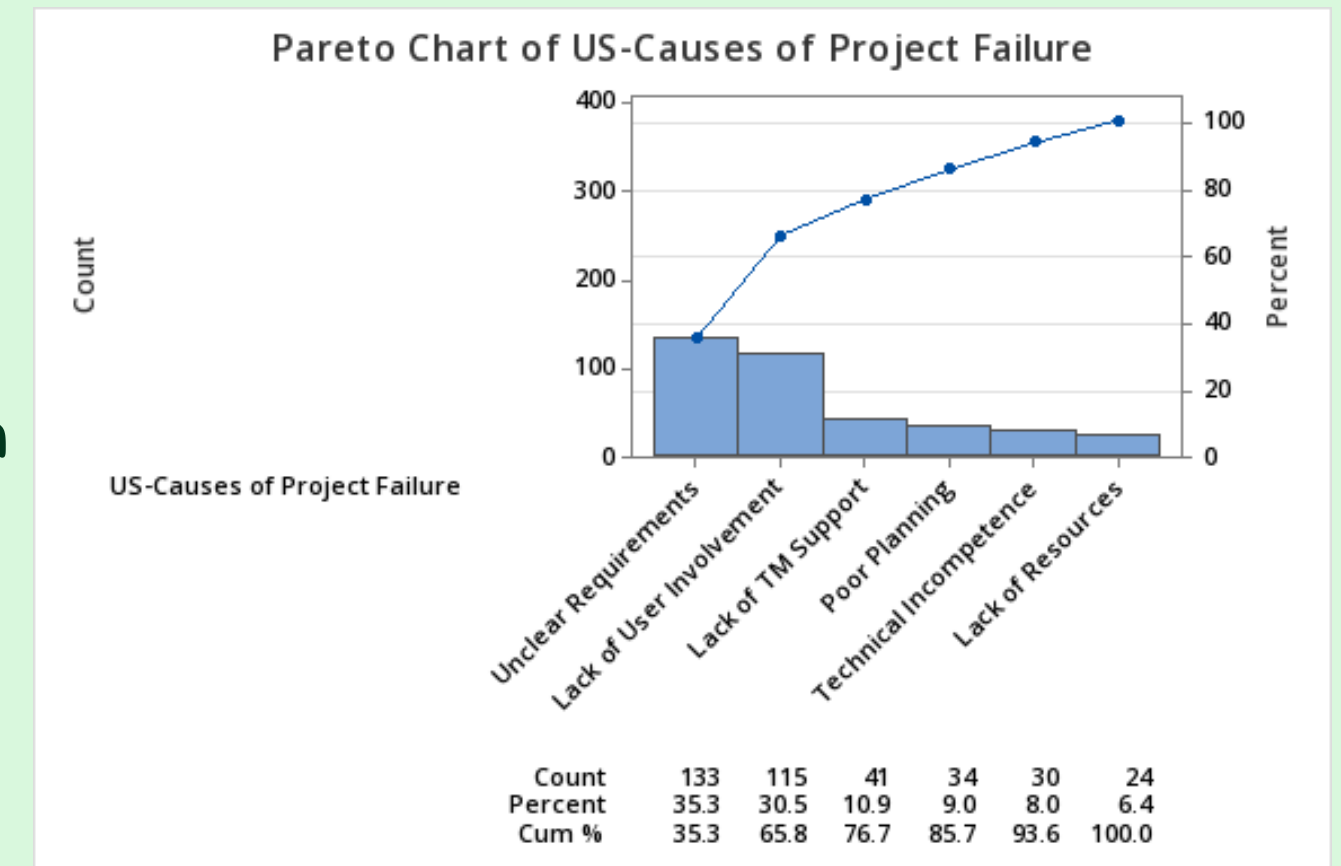
- Focus on managing resources, with detailed funding plans and sufficient human resources for installation and maintenance.
- Use tools like Work Breakdown Structure (WBS) to track and address potential shortages.

B. Clear and Comprehensive Requirements

- Clearly define deliverables, technical specs, and stakeholder expectations.
- Regularly review requirements to ensure clarity and alignment with project goals.

C. Community and Stakeholder Engagement

- Involve the local community in all major decisions, particularly those related to noise and environmental impact.
- Hold regular town meetings, update residents on project progress, and address concerns promptly to ensure continuous buy-in.



Causes of project failure (2)

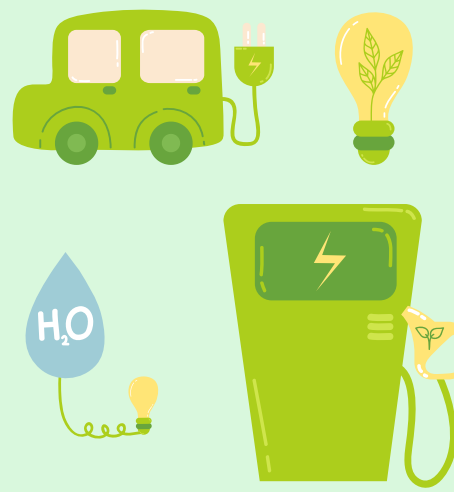
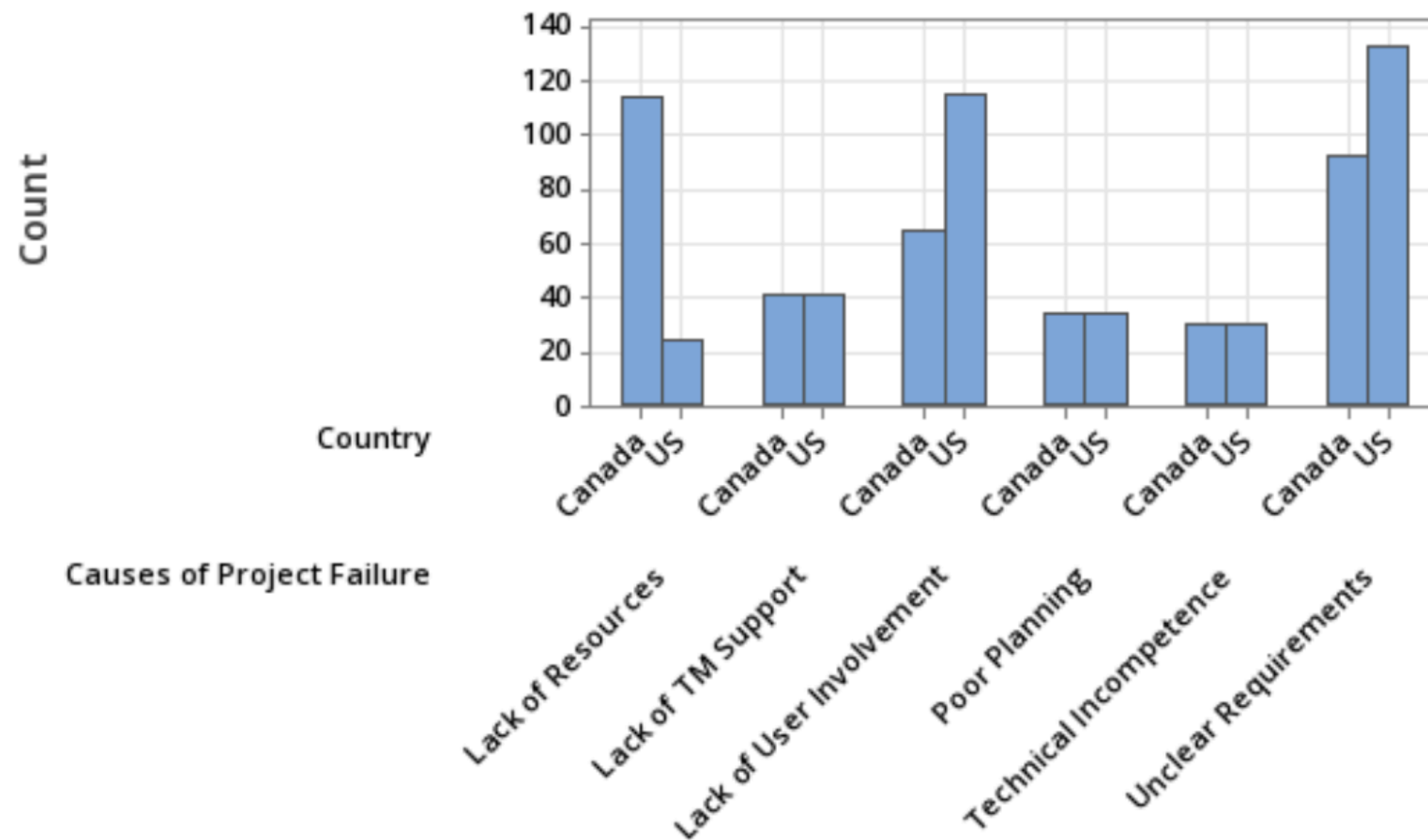


Chart of Causes of Project Failure, Country



Top Causes of Project Failure

Unclear Requirements

- Leading cause in both US & Canada.
- Action: Ensure the Fox Island project scope and technical requirements are well-documented.

Lack of User Involvement

- Significant in both regions, especially in the US.
- Action: Strengthen community engagement with regular updates and feedback loops.

Lack of Resources

- Major issue in Canada.
- Action: Secure funding and skilled labor to avoid delays.

Thank You



References

1. Carns and Bender (2008) Infinity Renewables – wind construction process.
2. Fox Islands Wind Project. (n.d.). Retrieved from <https://www.foxislandswind.com/>
3. Hamilton, J. D. (2009, May 28). Causes and consequences of the oil shock of 2007–08. NBER. <https://www.nber.org/papers/w15002>