

Qpacity

Building the research and planning for an energy business

Joel Ward | Company case study

I helped develop Qpacity's startup and commercialization work around a proposed graphene battery business. My contribution connected industry research, market opportunities, business plans, financial scenarios, partnership strategy, and communications for prospective investors and commercial partners. The work shows how a technical proposition can be organized into a business with defined markets and discussion materials.

The business opportunity

Qpacity's planning materials explored battery applications across low speed vehicles, home storage, utility-scale energy storage, and distributed energy systems. Each market raised different questions about buyers, product requirements, manufacturing, distribution, and capital. The task was to turn that broad opportunity into materials that could support specific business discussions.

My contribution

I developed and directed research papers, market analysis, business planning, projections, marketing materials, and partnership proposals. The low speed vehicle plan provides one detailed commercialization route. The wider opportunities paper and projection workbook compare additional applications. The white papers and presentation explain the company's proposed product positioning to readers with different levels of technical knowledge.

Connecting research to a market entry plan

The golf cart research examines the industry, battery limitations, customer segments, and market forecasts. That work feeds into the proposed GreenSpeed low speed vehicle business, including manufacturing and distribution, capital requirements, and projected economics. This gives a reader a path from the market problem to a particular business model.

Planning and explaining the proposed business

Financial and commercial planning

The financial work includes a consolidated market model, individual product-market scenarios, vehicle pro formas, and monthly cash-flow planning. Pricing and comparison workbooks put product specifications, competitor information, prices, weights, and dimensions into working tables. These tools make the assumptions behind the business discussion visible and allow different product opportunities to be compared.

White papers and partner communication

The battery and energy storage papers develop the company's proposed technical and commercial case. The later paper examines virtual power plants and distributed energy resources as another route to market. The presentation delivers the proposition visually, while the joint venture paper explains the business rationale for combining production and commercialization resources.

The resulting work

The result is a substantial research and planning package for startup development and commercial discussions. It demonstrates my ability to organize a complex opportunity into business plans, financial models, market papers, and communications that serve different audiences. The original spreadsheet work is available here through complete static PDF views.

Reading the original samples

These are historical company planning and marketing materials from 2023 and 2024. Product specifications and performance statements retain the claims made in those drafts. Market penetration, sales, cash flow, and returns are projections. The case documents the development work rather than reporting those assumptions as achieved operating results.

Work product index

Browse the original work by type. Links open the PDF exhibits after the package is extracted with its files together.

Business plans

[Low speed vehicle business plan](#) | 25 pages

Startup and growth strategy

[Low speed vehicle business plan](#) | 25 pages

[Virtual power plants and distributed resources paper](#) | 5 pages

[Market opportunities paper](#) | 9 pages

[Joint venture strategy](#) | 1 page

Research and market analysis

[Golf cart industry research](#) | 7 pages

[Energy storage systems white paper](#) | 6 pages

[Market opportunities paper](#) | 9 pages

[Complete market projection workbook](#) | 22 pages

[Performance comparison workbook](#) | 7 pages

White papers and technical communication

[Graphene battery white paper](#) | 5 pages

[Energy storage systems white paper](#) | 6 pages

[Virtual power plants and distributed resources paper](#) | 5 pages

Marketing and presentations

[Graphene presentation](#) | 16 pages

Investor communications

[Graphene presentation](#) | 16 pages

[Vehicle funding and pro forma](#) | 2 pages

Financial planning

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[Market projection summary](#) | 1 page

[Complete market projection workbook](#) | 22 pages

[Product pricing workbook](#) | 3 pages

Sales tools

[Product pricing workbook](#) | 3 pages

[Performance comparison workbook](#) | 7 pages

The following abstracts describe each sample. Original wording and document structure are retained, with privacy redactions and PDF conversion where needed. Workbook exhibits preserve saved source values in a readable static display.

Original work samples

Low speed vehicle business plan

Business plans · Startup and growth strategy

The complete original plan develops the proposed GreenSpeed low speed vehicle venture, linking the customer proposition to manufacturing, distribution, management, market research, and financial planning. Its appended exhibits preserve the research and assumptions used in the business discussion. Personal identifiers are redacted.

[Open original PDF](#) | 25 pages

Golf cart industry research

Research and market analysis

Three complete original research exhibits are combined with PDF bookmarks: the golf cart industry synopsis, battery industry analysis, and market analysis. They show the supporting research in a shorter form than the full business plan. These are also supporting exhibits to the vehicle planning work.

[Open original PDF](#) | 7 pages

Graphene battery white paper

White papers and technical communication

The original April 2023 paper explains Qpacity's proposed battery proposition, the industry problems it intended to address, product applications, and comparative specifications. It demonstrates the development of a technical business narrative. The historical performance claims and wording are retained.

[Open original PDF](#) | 5 pages

Original work samples

Energy storage systems white paper

White papers and technical communication · Research and market analysis

This original paper examines utility-scale storage demand, competing approaches, production constraints, and the company's proposed role in the ESS market. It connects industry research with product positioning and includes source notes and a comparative specification table.

[Open original PDF](#) | 6 pages

Virtual power plants and distributed resources paper

White papers and technical communication · Startup and growth strategy

The 2024 paper explores virtual power plants, distributed energy resources, and the proposed commercialization opportunities around them. It shows how the business narrative extended beyond a stand-alone battery sale to the emerging energy-system applications considered in the original planning work.

[Open original PDF](#) | 5 pages

Graphene presentation

Marketing and presentations · Investor communications

The complete 16-slide original presentation explains the company's proposed battery offering through product imagery, performance comparisons, market applications, and business positioning. It complements the longer research and white papers with a format designed for presentations and partner discussions. Direct contact details are removed.

[Open original PDF](#) | 16 pages

Original work samples

Market opportunities paper

Research and market analysis · Startup and growth strategy

The original opportunities document surveys applications including vehicles, home batteries, energy storage, microgrids, and other battery markets. It pairs market forecasts with proposed market penetration and revenue scenarios, showing how the company considered several commercialization paths.

[Open original PDF](#) | 9 pages

Joint venture strategy

Startup and growth strategy

This concise original paper states the proposed business advantages of a Qpacity and Zetech joint venture: capitalization, production, development, distribution, marketing, and long-term organization. It is a strategic rationale for discussion, with its original valuation and growth hypotheses retained.

[Open original PDF](#) | 1 page

Vehicle funding and pro forma

Financial planning · Investor communications

The complete original capital-requirements and use-of-funds exhibit is followed by its one-page financial projection table. The sample shows how the proposed vehicle business was translated into a capital discussion. These are historical planning and offering drafts, preserved as work samples.

[Open original PDF](#) | 2 pages

Original work samples

Market projection summary

Financial planning

The original one-page published market summary dated April 8, 2023 offers a quick view of market size, growth assumptions, and proposed revenue scenarios across the product applications. It remains a separate dated source from the complete working workbook.

[Open original PDF](#) | 1 page

Complete market projection workbook

Financial planning • Research and market analysis

Readable PDF views of all twenty original worksheets preserve the saved consolidated model, individual application forecasts, vehicle economics, and monthly cash-flow scenarios. All columns of each sheet appear together on landscape pages, with rows continuing vertically when needed. Original saved values are used without recalculation.

[Open original PDF](#) | 22 pages

Product pricing workbook

Financial planning • Sales tools

A complete static view of the original pricing worksheet preserves product descriptions, electrical ratings, prices, weights, and dimensions. All thirteen columns appear together on landscape pages so visitors can read the full source without opening Excel.

[Open original PDF](#) | 3 pages

Original work samples

Performance comparison workbook

Research and market analysis · Sales tools

Complete static views of the ESS and Home Bat worksheets preserve proposed product and competitor comparisons, including blank fields and original units. This sample shows the working comparison tables behind product positioning and sales discussions.

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