NIIR PROJECT CONSULTANCY SERVICES

STRATEGIC PLANT-BASED PROTEIN MANUFACTURING

Transforming Investment Vision into Industrial Reality

Client: M/s. Biovic Consulting, S.L. | Paterna (Valencia), Spain

Project: Pea Protein Isolate Manufacturing Unit

Service: Techno-Economic Feasibility Study & Strategic Advisory

FOOD TECHNOLOGY | PLANT-BASED NUTRITION | EUROPE | SUSTAINABLE MFG

ABOUT NIIR PROJECT CONSULTANCY SERVICES (NPCS)

Niir Project Consultancy Services (NPCS) is a premier industrial consultancy dedicated to empowering entrepreneurs, investors, and industries worldwide. With four decades of hands-on expertise, NPCS bridges the gap between investment ideas and profitable, sustainable manufacturing ventures.

NPCS is part of Asia's leading industrial knowledge ecosystem — with thousands of project profiles and global consulting expertise spanning food processing, chemicals, pharmaceuticals, agro-industries, and advanced manufacturing.

Core Services

Detailed Project Reports (DPR)

Bankable, investor-grade reports covering technical, financial, and regulatory dimensions of any manufacturing project.

Techno-Economic Feasibility Studies

Rigorous analysis of project viability — from machinery selection to market potential to financial modelling.

Market Research & Demand Analysis

Data-driven insights into industry trends, competitive landscapes, and growth potential across global markets.

Engineering & Strategic Advisory

Process design, plant layout, machinery selection, implementation roadmaps, and investor communication support.

NPCS by the Numbers

30,000+	50+	30+	250,000+
Project Reports Published	Countries Served	Years of Industrial Expertise	Industrial Projects Delivered

CLIENT OVERVIEW

M/s. Biovic Consulting, S.L. — Paterna (Valencia), Spain

CLIENT NAME	M/s. Biovic Consulting, S.L.
LOCATION	Paterna (Valencia), Spain
INDUSTRY FOCUS	Large-Scale Industrial Manufacturing Investment
PROJECT RECOMMENDED	Pea Protein Isolate Manufacturing Unit
CONSULTANCY SERVICE	Techno-Economic Feasibility Study, Market Analysis & Strategic Advisory
IMPLEMENTATION STATUS	Client accepted feasibility insights and proceeded with project implementation planning

Background & Investment Objectives

M/s. Biovic Consulting, S.L., headquartered in Paterna (Valencia), Spain, is a forward-thinking investment consultancy actively seeking large-scale manufacturing opportunities aligned with global sustainability and food innovation megatrends. The firm approached NPCS with a clear mandate: identify a high-growth, future-proof manufacturing venture.

The client's core investment objectives were:

- Identify a high-growth, scalable manufacturing opportunity with durable long-term demand
- Align the investment with the rapidly expanding sustainable and plant-based food industry in Europe
- Leverage European agricultural resources for cost-effective raw material supply
- Minimise investment risk through rigorous techno-economic feasibility analysis before committing capital
- Establish a market-leading manufacturing presence in the European plant-based nutrition sector

CHALLENGES & PROBLEM STATEMENT

MARKET COMPLEXITY	Navigating the fragmented and rapidly evolving European plant-based protein landscape to identify the optimal product segment and entry strategy.
TECHNICAL UNCERTAINTY	Evaluating protein extraction process technologies (wet fractionation, air classification), purity benchmarks (≥85%), and capital requirements for a new manufacturing operation.

FINANCIAL RISK	Assessing capital-intensive plant setup costs, operational expenditure, and ROI potential in a nascent but fast-growing segment with limited comparable benchmarks.
SUPPLY CHAIN	Analysing yellow pea supply chains across Europe — seasonal availability, pricing volatility, supplier ecosystem, and procurement strategy frameworks.
REGULATORY LANDSCAPE	Understanding EU food-grade manufacturing regulations, novel food approvals, clean-label standards, and sustainability certification requirements for plant-based proteins.

NPCS APPROACH & METHODOLOGY

NPCS deployed its proven multi-disciplinary consulting methodology, combining deep industrial expertise with data-driven analysis. The engagement was structured across six interconnected phases to ensure a comprehensive, bankable feasibility outcome.

01

PROJECT IDENTIFICATION

Systematic screening of emerging food ingredient sectors. Cross-referencing global megatrends with European market dynamics to identify pea protein isolate as the optimal opportunity.

02

MARKET ANALYSIS

In-depth assessment of the European plant-based protein market — size, CAGR, competitive landscape, end-user industries, and demand forecasting through 2033.

03

TECHNICAL FEASIBILITY

Evaluation of protein extraction technologies (wet fractionation), process parameters, purity targets (≥85% protein), infrastructure needs, and quality benchmarks.

04

FINANCIAL MODELLING

Detailed projection of CAPEX, OPEX, revenue scenarios, break-even analysis, IRR/NPV computation, and sensitivity analysis across market scenarios.

05

RAW MATERIAL ASSESSMENT

Analysis of yellow pea supply across Europe — supplier ecosystem, seasonal patterns, pricing benchmarks, and strategic procurement framework development.

06

IMPLEMENTATION ROADMAP

Phase-wise project execution plan covering plant location selection, regulatory licensing, technology procurement, team building, and market launch strategy.

SCOPE OF SERVICES DELIVERED

SERVICE DELIVERED	DESCRIPTION
Detailed Project Report (DPR) Preparation	Comprehensive bankable report covering technical, financial, regulatory, and market dimensions of the pea protein isolate manufacturing project.
Plant Layout & Infrastructure Design	Optimised facility planning: processing zones, utility areas, QC laboratory, warehousing, effluent treatment, and environmental compliance infrastructure.

Machinery Selection & Technology Evaluation	Assessment of wet fractionation and air classification systems; global technology provider benchmarking and capital cost comparison.
Financial Modelling & Investment Analysis	Multi-scenario CAPEX/OPEX projections, revenue forecasts, NPV, IRR, payback period estimation, and sensitivity analysis.
Market Validation & Demand Forecasting	European market sizing, end-user segment analysis, competitive benchmarking, pricing research, and growth projection through 2033.
Implementation Strategy & Roadmap	Phased execution timeline with milestones, resource requirements, risk mitigation protocols, and go-to-market strategy.
Strategic Advisory Support	Consultation on scalability, technology partnerships, financing options, and long-term market positioning in the European plant-based sector.

TECHNICAL INSIGHTS

Pea Protein Isolate — Manufacturing Process & Key Technologies

Pea Protein Isolate (PPI) is manufactured through sophisticated wet fractionation technology that extracts and concentrates protein from yellow split peas (Pisum sativum). The process achieves protein purity levels of 85–90%+, producing a premium ingredient for plant-based meat, sports nutrition, dairy alternatives, and functional food applications.

Manufacturing Process — Step by Step

01 RAW MATERIAL PROCUREMENT

Yellow split peas sourced from European agricultural supply chains; quality screening for protein content, moisture levels, and absence of impurities.

02 CLEANING & DE-HULLING

Multi-stage cleaning removes foreign matter; pneumatic de-hulling separates seed coat from cotyledon for higher protein yield in downstream processing.

03 MILLING & GRINDING

Roller milling produces fine pea flour with controlled particle size distribution to optimise protein extractability and starch-protein separation efficiency.

04 ALKALINE EXTRACTION

Extraction at pH 8.5–9.0 in aqueous medium; proteins solubilise from pea flour into liquid phase under controlled temperature (15–25°C).

05 CENTRIFUGATION & SEPARATION

High-speed centrifugation separates protein-rich supernatant from insoluble fibre and starch fractions; multi-stage clarification achieves high purity.

06 ISOELECTRIC PRECIPITATION

pH adjustment to ~4.5 (isoelectric point) precipitates protein; secondary centrifugation collects protein curd with minimal contaminants.

07 NEUTRALISATION & WASHING

pH re-adjusted to 6.5–7.0; protein curd washed to remove residual sugars, anti-nutritional factors, and off-flavour compounds.

08 SPRAY DRYING & PACKAGING

High-temperature spray drying (inlet 180°C, outlet 80°C); moisture controlled to <7%; food-grade hygienic packaging in 25 kg bags, IBC containers.

Key Technologies & Machinery

EQUIPMENT / TECHNOLOGY	FUNCTION & SPECIFICATION
Hammer / Roller Mills	Pea flour production with controlled particle size distribution (PSD)
Decanter Centrifuges	Continuous high-volume protein–starch–fibre separation
Disc Stack Centrifuges	High-efficiency protein curd collection and liquid clarification

pH Control & Dosing Systems	Automated acid/alkali dosing for precise extraction and precipitation
Industrial Spray Dryers	Powder production: inlet 180°C / outlet 80°C; moisture <7%
UF/MF Membrane Systems	Optional protein concentration and purification (ultrafiltration/microfiltration)
Automated Packaging Lines	Filling equipment for 25 kg bags, IBC containers, and retail packs
CIP/SIP Systems	Clean-in-Place / Sterilise-in-Place for food-grade manufacturing compliance

FINANCIAL & MARKET ANALYSIS

European Market Opportunity

The European pea protein market represents one of the most compelling growth opportunities in the global food ingredient sector. Driven by structural shifts — rising veganism, flexitarian diets, and demand for sustainable, clean-label nutrition — the market is positioned for exceptional expansion through 2033.

MARKET INDICATOR	VALUE	SOURCE / NOTES
European Pea Protein Market (2023)	USD 556.5 Million	Industry Research Reports
Expected CAGR (2023–2030)	~11.6% per annum	Consensus Analyst Estimates
Pea Protein Isolate Market (2025)	USD 345 Million	European Segment Data
Projected Market Size (2033)	USD 850 Million	NPCS Market Projection
Primary Growth Drivers	Vegan, clean-label, gluten-free demand	Consumer Research
Key End-Use Segments	Plant-based meat, sports nutrition, dairy alternatives	Industry Data
Spain Market Position	Emerging food innovation & plant-based R&D hub	EU Food Reports
Import Substitution Opportunity	Significant — Europe currently imports high volumes of PPI	Trade Data Analysis

Market Growth Trajectory — Key Data Points

2023	2025	2027	2029	2031	2033
USD 557M	**USD 693M**	**USD 862M**	**USD 1,073M**	**USD 1,335M**	**USD 1,660M**
Base Year	Growing	Expanding	Maturing	Scaling	Projected

** European Plant-Based Protein Market projected values based on NPCS analysis and industry consensus estimates. CAGR ~11.6% applied from 2023 base.*

Investment & Financial Outlook

FINANCIAL PARAMETER	INDICATIVE RANGE
Total Project Investment (CAPEX)	USD 8–15 Million (capacity-dependent)

Initial Plant Capacity	2,000–5,000 MT/annum Pea Protein Isolate
Estimated Revenue (Year 3)	USD 12–22 Million (at full utilisation)
Gross Margin Potential	35–45% (premium food-grade product positioning)
Payback Period	4–6 Years
Internal Rate of Return (IRR)	18–26% (scenario-dependent)
Break-Even Utilisation	55–65% of installed capacity
Net Present Value (NPV)	Strongly positive across base & optimistic scenarios

Indicative Investment Breakdown

PROJECT EXECUTION TIMELINE

PHASE 1
Weeks 1–2

Project Initiation & Brief

Client briefing, investment objectives alignment, sector screening framework development, and preliminary literature review on plant-based protein industry.

PHASE 2
Weeks 3–4

Market Intelligence & Opportunity Identification

European plant-based protein market deep-dive; identification and ranking of top investment opportunities; pea protein isolate selected as the optimal recommendation.

PHASE 3
Weeks 5–7

Technical Feasibility Assessment

Manufacturing process evaluation, machinery benchmarking, plant layout conceptualisation, utility requirements analysis, and raw material supply chain assessment.

PHASE 4
Weeks 8–10

Financial Modelling & Economic Analysis

CAPEX/OPEX modelling, multi-scenario revenue projections, break-even analysis, IRR/NPV computation, sensitivity analysis across market and cost scenarios.

PHASE 5
Weeks 11–12

Report Compilation & Strategic Advisory

Synthesis of all analysis into comprehensive DPR; strategic recommendations on phased implementation, technology partners, regulatory pathway, and market entry strategy.

PHASE 6
Ongoing

Implementation Support

Advisory during plant location finalisation, regulatory engagement, technology vendor evaluation, project financing discussions, and operational readiness planning.

RESULTS & BUSINESS OUTCOMES

Strategic Clarity

Client gained a clear, data-backed investment thesis for entering the European pea protein market — eliminating guesswork and decisively reducing investment risk.

Market Confidence

Comprehensive market validation confirmed strong demand fundamentals, growing end-user base, and favourable pricing dynamics supporting a positive market entry.

Technical Readiness

Full understanding of manufacturing requirements, wet fractionation technology options, quality benchmarks, and

Financial Precision

infrastructure needs — enabling informed technology partner selection.	Rigorous financial modelling delivered investment clarity: CAPEX range, realistic revenue forecasts, and risk-adjusted return projections with scenario sensitivity.

Risk Mitigation	Implementation Blueprint
Systematic analysis of supply chain, regulatory landscape, and competitive dynamics significantly reduced the risk profile and uncertainty of the investment decision.	Phased execution roadmap provided a clear path from feasibility to factory commissioning, with actionable milestones and defined decision points at each stage.

CLIENT TESTIMONIAL

"Niir Project Consultancy Services provided exceptional guidance in identifying a future-focused manufacturing opportunity in the plant-based nutrition sector. Their techno-economic feasibility insights helped us evaluate the project with full confidence and move forward decisively with implementation planning. NPCS demonstrated a rare combination of deep industrial knowledge, market intelligence, and structured analytical rigour that gave us complete conviction in our investment decision."

— **M/s. Biovic Consulting, S.L.** | Paterna (Valencia), Spain

WHY CHOOSE NPCS?

PROVEN INDUSTRIAL EXPERTISE

40+ years of hands-on experience across 250,000+ industrial projects spanning food processing, chemicals, pharmaceuticals, agro-industries, and advanced manufacturing sectors globally.

GLOBAL MARKET INTELLIGENCE

Deep understanding of market dynamics in 50+ countries — from raw material economics to end-consumer demand trends — enabling truly global, informed investment strategies.

DATA-DRIVEN FEASIBILITY

Every recommendation backed by rigorous quantitative analysis: financial modelling, demand forecasting, competitive benchmarking, and risk-adjusted scenario planning.

END-TO-END PROJECT SUPPORT

From opportunity identification through technical design, financial structuring, regulatory compliance, and implementation roadmapping — NPCS covers the full project lifecycle.

RISK MITIGATION APPROACH

Structured analytical frameworks identify and quantify project risks upfront, enabling investors to make informed decisions with significantly reduced uncertainty and exposure.

BANKABLE DELIVERABLES

30,000+ published DPRs and feasibility studies trusted by banks, investors, and government bodies for project financing, industrial licensing, and investment decisions.

CONCLUSION

The Biovic Consulting, S.L. engagement exemplifies NPCS's core value proposition: transforming investment intent into actionable industrial intelligence. By delivering a rigorous, multi-dimensional feasibility study, NPCS empowered the client to enter the European plant-based protein sector with full analytical confidence and a clear execution pathway.

With European pea protein isolate market projections tracking from USD 345 million in 2025 to USD 850 million by 2033 — representing 2.5x growth in under a decade — early movers with robust manufacturing capabilities stand to capture

disproportionate market value. The combination of growing consumer demand, supportive EU agricultural infrastructure, and sustainability-driven purchasing creates a uniquely favourable investment environment.

NPCS remains committed to supporting M/s. Biovic Consulting, S.L. through subsequent implementation phases, and looks forward to continuing its role as a trusted industrial advisory partner in this strategically important project.