

LP Building Solutions Capital Budgeting Case

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ABSTRACT

LP Building Solutions (NYSE: LPX), a leading manufacturer of engineered wood products, is considering a strategic capital investment of \$300 million to convert its Sagola mill in Michigan from producing Oriented Strand Board (OSB) to SmartSide Siding. This case study examines the financial feasibility of this conversion, aligning with LP's broader strategy to diversify away from commodity OSB and capitalize on the growing demand for their higher-margin SmartSide products. The study details key financial assumptions, including capital expenditures, production capacities, and pricing models. It also evaluates the downtime required for conversion, the projected sales volumes of SmartSide, and long-term profitability measured by net present value (NPV) and internal rate of return (IRR) calculations. The case highlights the advantages of product portfolio diversification, focusing on LP's ability to be a "price maker" in the SmartSide market while enhancing shareholder value. Ultimately, the firm explores whether this strategic investment will yield sufficient returns to justify the risk. This case study is based on a real company using publicly available data and some commonly known industry assumptions. However, certain names, data, and specific details have been altered to protect confidentiality and/or for educational purposes. This case is intended for academic discussion and learning only.

Keywords: Capital Budgeting, Net Present Value (NPV), Internal Rate of Return (IRR), Weighted Average Cost of Capital (WACC), Financial Forecasting, Investment Decision-Making

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OVERVIEW

LP Building Solutions (NYSE: LPX), a leading manufacturer of engineered wood building materials is contemplating a significant strategic shift. To reduce reliance on Oriented Strand Board (OSB) and capitalize on the growing demand for their superior SmartSide Siding products, LP plans to invest \$300 million to convert its Sagola mill in Michigan. This case study explores the financial feasibility of this investment and its alignment with LP's long-term strategic goals.

A brief company history highlights the firm's market segments and recent strategic moves. The description then shifts to the advantages of diversifying the product portfolio with SmartSide Siding. LP's strategic plan outlines a vision for growth and the rationale behind converting the mill. The discussion centers on critical aspects of this capital investment, including financial assumptions and anticipated outcomes. Finally, key financial metrics crucial for assessing the project's financial viability and its potential impact on shareholder value are identified as essential components in making this capital budgeting decision.

COMPANY BACKGROUND

Louisiana Pacific (LP) Building Solutions is a multinational manufacturer based in Nashville, TN. LP is a major manufacturer of engineered wood building materials, structural framing goods, and exterior siding. The corporation has several factories in the United States, Canada, Chile, and Brazil. The company operates in three primary segments:

- Siding (51.5% of 2023 Revenue)
- Oriented Strand Board (OSB) (39.8% of Revenue)
- LP South America (7.9% of Revenue)

The Siding segment sells LP SmartSide trim and siding as well as other innovative products for premium buildings. The OSB segment sells structural panel products; strong, moisture resistant sub-flooring; and fire-rated sheathing.

PRODUCT PORTFOLIO DIVERSIFICATION

Due to the firm's ability to produce stronger, thicker strand-lumber products more effectively than other mills, LP decided to expand its Siding business in 2024, diversifying away from commodity Oriented Strand Board (OSB). SmartSide represents a unique form of engineered wood siding, allowing for applications in siding, soffits, and other building areas. Compared to other wood and cement-based products, SmartSide is superior in that LP could offer a board with customizable structural characteristics (stiffnesses and thicknesses) with the benefit of being a moisture-resistant siding product used in the construction of residential and commercial properties. SmartSide trim and siding come with a 50-year limited warranty on exterior use. Consistent with a shift in emphasis from commodity products to higher value-added specialty products, LP sold its Engineered Wood Products business to Pacific Woodtech in the latter part of 2022.

SmartSide stands out from commodity engineered wood products because it is highly specialized, continually growing, and currently maintains high and stable prices and margins. In the market for SmartSide, LP is a “price maker” while, within the OSB market, LP is positioned to be a “price taker”.

STRATEGIC PLAN.

LP’s strategic plan is to rely less on commodity OSB by phasing out certain manufacturing facilities and to aggressively grow the SmartSide product line. As a result, LP is considering a capital investment of \$300M to convert its Sagola mill in Michigan from OSB to SmartSide production. This business case primarily describes the market assumptions, selling prices, and production costs of the SmartSide initiative.

Beyond this decision, LP has also made two other major investments to increase Siding production. It has opened an ExpertFinish facility in Bath, NY, and it has purchased a vacant factory in Wawa, Ontario. If the conversion goes through, it is expected that the production capacity for the SmartSide segment will expand to 2.3 billion square feet. Concurrently, the production capacity of the OSB segment will fall to 4.0 billion square feet.

CAPITAL INVESTMENT

The following fact pattern is simplified for ease of understanding but is based on real events. To meet a July 2024 production schedule for SmartSide, LP is seeking a financial analysis to inform the potential decision to convert its existing plant in Sagola, Michigan. The primary fixed asset required for SmartSide production is a Dieffenbacher single opening steam injection press which costs \$280 million. In addition to the new press, LP estimates that the refurbished mill would require a \$20 million infusion of net working capital (NWC). The capital expenditure and net working capital requirements total \$300 million (\$280M equipment plus \$20M NWC).

Converting the mill in Sagola, MI from OSB to Siding production, while complicated, expensive, and time-consuming, is by far the most capital efficient way to add SmartSide capacity when compared to building a new manufacturing facility.

CAPITAL BUDGETING ASSUMPTIONS

The capital budgeting decision to convert or not to convert the Sagola mill depends on a variety of assumptions that factor into the financial projections determining the viability of the project. These projections account for the required downtime during conversion, the transition from OSB to SmartSide production, and anticipated capacity utilization. Key financial and operational factors considered include fixed and variable cost structures, sales volume, pricing, and investment financing. These baseline assumptions clarify the economic outlook of the project and allow management to assess the risk and return of this strategic allocation of capital.

Conversion Downtime

The process of converting the mill requires roughly 6 months of downtime (January through June 2024), during which no production of any product is possible. When production of SmartSide begins, the mill ramps up slowly from a dead start to full capacity utilization over the remainder of the year.

Production Transition

When SmartSide production commences, the mill will cease manufacturing OSB products. As SmartSide production starts, fixed costs will be based on a percentage of sales and will grow with production capacity. Existing employees will be retained, and new hires will increase fixed costs accordingly.

Capacity Utilization

Due to the additional process steps in SmartSide manufacturing, the production volume is affected, resulting in approximately 20% reduction in annual production volume. However, the plant is still 100% utilized, it just produces SmartSide at a slower rate than it produced OSB. The Sagola mill, capable of producing a maximum of 300 million square feet per year (300,000 MSF), will have an operational capacity of 240,000 MSF (80% of 300,000 MSF) once the full conversion to SmartSide is complete.

Financial Assumptions

The investment transaction will be financed using LP's existing capital structure. Inflation of inputs and raw material price variability will be ignored. A 2% per annum price increase for the finished product is assumed, boosting sales and increasing the annual net profit margin. Yearly projections are as follows:

Year 1 Projections.

- **Downtime:** 6 months (January to June 2024) for conversion; no SmartSide or OSB production.
- **Costs:** \$300M incurred; \$280M depreciation commences (15-year MACRS).
- **Production:** SmartSide production equal to 25% of annual operating capacity $((300,000 \text{ MSF} * 80\%) * 25\%) = 60,000 \text{ MSF}$.
- **Costs Structure:** Fixed costs of SmartSide = 32% of Total Revenue, Variable costs = 26% of Total Revenue.
- **Sales Price:** Base sales price is \$800 per MSF (unchanged for all 10 years of production).
- **Depreciation:** Based on the 15-year property class MACRS schedule as indicated in Table 1 (Appendix).¹

¹ <https://www.irs.gov/pub/irs-pdf/i4562.pdf>

Years 2-10 Projections.

- **Production:** Siding production at 100% of operating capacity.
- **Sales Price Increase:** 2% per year over the immediate previous year.
- **Costs Structure:** Fixed costs of SmartSide = 36% of Total Revenue, Variable costs of SmartSide = 15% of Total Revenue.
- **Depreciation:** Based on the 15-year property class MACRS schedule.

Sales Volume and Pricing

LP projects the sales volume to increase from 60,000 MSF in 2024 to 240,000 MSF annually from 2025 onwards, with the base sales price starting at 800 per MSF in 2024 and increasing by approximately 2% annually, reaching \$955 per MSF by 2033.

Project Termination and Additional Assumptions

The project will terminate in 2033 with the \$112,000,000 market sale of its Dieffenbacher press. The firm expects a marginal tax rate of 21% (used in deriving Operating Cash Flows) and a capital gains tax rate of 21% (used in deriving the tax loss/gain on the press salvage value). The net working capital requirement of \$20 million initially is returned when the project terminates.

Capital Structure and Cost of Capital Assumptions

LP will raise all the capital to finance this project using a blend of debt and equity. LP intends to use a capital structure based on the following existing sources. Cost of capital assumptions are based on the following:

- The firm currently has 1,120,000 bonds outstanding with the following terms: Remaining Maturity = 15 years, Coupon Rate = 5.40% (semiannual payment), Current Price = \$950, Face Value = \$1,000.
- The firm currently has 73,000,000 common shares outstanding with the following price and market terms: Stock Price = \$50, Beta = 1.15, Risk Free (Rf) Rate = 1%, Market Expected Return = 8%

Capital Investment Decision

The conversion of Sagola mill to SmartSide production aligns with the strategic goals of LP. Allocating \$300 million in capital investment to this project is a significant long-term investment decision that must contribute toward increasing shareholder value. Utilize financial metrics such as cashflow forecasting, net present value, internal rate of return and payback period analysis to determine the potential profitability as well as risk-reward prospects of the project. Should LP convert the Sagola mill facility to exclusively producing SmartSide?

TEACHING NOTE: LP BUILDING SOLUTIONS CAPITAL BUDGETING CASE

Guide participants through the following steps necessary to evaluate the financial viability of converting the Sagola mill facility to the exclusive production of SmartSide:

1. **Identify Key Assumptions:** Document critical assumptions like projected quantities, prices, revenues, costs, and tax rates. These form the basis of the analysis.
2. **Calculate Initial Investment Outlay:** Determine the Year 0 investment, including the \$280 million cost of the Dieffenbacher press and \$20 million in net working capital, totaling \$300 million.
3. **Depreciation Schedule:** Apply the MACRS 15-year schedule to calculate annual depreciation and track the asset's book values for accurate tax calculations as well as cash flow analysis.
4. **Operating Cash Flows (OCF):** Prepare a pro forma income statement for years 1-10, incorporating assumptions about sales, costs, depreciation, and taxes to calculate OCF.
5. **Year 10 Additions to OCF:** Include net working capital recovery and the after-tax salvage value of the press in the final year's cash flows, adjusting for capital gains taxes.
6. **Calculate Weighted Average Cost of Capital (WACC):** Compute WACC using the cost of debt, cost of equity, and their proportions in LP's capital structure. Discuss how debt levels affect WACC and project financing given the pricing volatility of the sector.
7. **Compute NPV and IRR:** Calculate Net Present Value (NPV) and Internal Rate of Return (IRR) using WACC as the discount rate to assess financial viability. A positive NPV and IRR exceeding WACC indicate profitability. Optionally, calculate the payback period.
8. **Discussion Questions:** Explore how changes in assumptions (e.g., pricing, production volume, operating expenses, terminal value) impact NPV or IRR. Consider additional factors like regulations, market competition, industry trends, and macroeconomic conditions.

By following these steps, participants will systematically evaluate the project's financial prospects and gain insights applicable to other capital budgeting scenarios. Emphasize that both meticulous calculations and critical assessment of assumptions are necessary to ensure reliable financial projections.

APPENDIX

Table 1 – Sales units and pricing yearly projections

Year	Sales Volume (MSF)	Base Sales Price (\$/MSF)
2024	60,000	800
2025	240,000	816
2026	240,000	832
2027	240,000	849
2028	240,000	866
2029	240,000	883
2030	240,000	900
2031	240,000	918
2032	240,000	936
2033	240,000	955



REFERENCES

Louisiana Pacific. (2024). 2023 Annual Report. Retrieved from <https://investor.lpcorp.com/financial-information/annual-reports>

HBS Dealer. (2023). Retrieved from <https://hbsdealer.com/lp-begins-production-sagola-smartside-facility>

Iron County Reporter. (2024). Retrieved from <https://www.ironcountyreporter.com/news/lp-begins-sagola-expansion>

