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ENERGY GEL - A NEW PRODUCT INTRODUCTION (A)

Biting into a Quickpro energy bar while taking a break from his Sunday-biking tour, Harry Wickler, vice-president business development at High Performance Corporation (HPC), reflected on the heated discussion he had last week.

He and his business development team at the energy food division had presented a business plan for the new product introduction of Energy Gel; a small gel-type nutrition package intended to replenish the body with carbohydrates and electrolytes faster than traditional energy bars. Providing this nutrition as a gel reduced the energy needed to absorb and digest it, and prevented the product from breaking even under extreme conditions (such as mountain biking and free-climbing). Several quickly growing entrepreneurial companies had already introduced the product and, according to Wickler, proved it to be the most important development in the carbohydrate energy food market since energy bars. Nevertheless, none of the major food or energy drink companies had entered this market yet. He was convinced that now, in October 2000, four years after the first energy gels were introduced, it was time for HPC to react and strengthen its own position in this market by launching an energy gel product line.

Unfortunately, not all of the parties involved in the decision process agreed on his point of view. In particular, two issues, which had a significant impact on the profitability calculation of the new product, remained unsolved: First, did the potential cannibalization of HPC's highly profitable energy bar products diminish the attractiveness of launching the new energy gel? Second, should the new project bear incremental or even full costs for the use of otherwise idle capacity?

High Performance Corporation

HPC, a large US food and drink conglomerate with about $ 1.9 billion of annual sales, consisted of three divisions: food, drink and international operations. Each division was organized along several product lines. Major food products included baking products, preserves, yogurts and snacks. Within the snack product line, energy bars represented the fastest growing segment and already amounted to over 20% of divisional revenues. The introduction of energy bars to HPC's product portfolio in 1989 was HPC's most successful new product expansion in the last 11 years. The drink division consisted of fruit juices and energy drinks. Both energy drink and energy bar products had grown at double-digit rates since their introduction at HPC. Financial statements for HPC are given in exhibits 1 and 2. Stock prices and financial markets data are given in exhibit 3. Historical and pro-forma performance of the energy bar product line is given in exhibit 4.

The Energy Foods Market

In the beginning, there were Space Food Sticks[1]. Created by Pillsbury as a high-energy snack for NASA astronauts, these chewy, fudgy bars took their first mission on the Mercury spacecraft in 1962. This small step for nutrition bars evolved into a giant leap for what became a $1-billion industry by the year 2000. Called nutrition bars or energy bars, these food products crossed over from their traditional health-food market to the fitness realm and beyond. They were often perceived as a good alternative meal for people on the go. According to ACNielsen's affiliate, SPINS, a market research company, supermarket sales of energy bars grew 35 percent in 2000.[2] And, despite the sometimes high costs – bars ranged from 99 cents to close to $3 – sales had grown every year since 1996[3]. HPC expected the energy bar market to grow at 10% per year in 2001 and 2002, 9% in 2003 and 8% thereafter.

As more manufacturers entered the lucrative energy bar market, existing manufacturers were continually searching for differentiation, mainly by varying ingredient composition and flavor. The search for differentiation led to the development of the first energy gels, a completely new category within the energy foods segment, in the mid-1990s. In 2000, the energy gel market was still very fragmented, with mainly small players such as PowerBar or Clif Bar (Table 1). With the exception of Carb-Boom and Kitsune Foods, which produced energy gels exclusively, these companies had their origin in the general sports nutrition area, particularly in the energy bar arena, before entering the energy gel market. Despite their rapid growth, most companies were still privately owned.

Company	**Energy Gel (Brand Name)**
Carb-BOOM	Carb-BOOM Gel
Clif Bar	Clif Shot
GU	GU Carbohydrate Gel
Kitsune Food	Fireball Energy Gel
PowerBar	PowerGel

Table 1: Selected Companies in the Energy Gel Market

Energy Gel - Usage and Advantages

Energy gels were generally positioned as the athletes' fuel for high performance. Their texture was initially similar to cake icing, and they contained concentrated simple and complex carbohydrates, electrolytes and mostly real fruit. They were promoted as a new category of sports nutrition by manufacturers through their sponsorship of athletic events and individual athletes, particularly in the area of extreme endurance sports.

Compared to energy bars, energy gels were formulated to be metabolized more quickly, were easier to handle during exercise, and required less energy to consume. The gels were typically used as a supplement for stabilizing energy levels shortly before and particularly during exercise. Usually, within five to ten minutes, the carbohydrates and electrolytes were assimilated into the consumer's body, working to sustain overall endurance and performance. Especially during times of extreme physical challenges, such as marathons and mountain bike races, the quick absorption and easy handling proved to

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[1] "FOOD DAY / WEDNESDAY / BAR EXAM / In which we take a critical look at the leading energy snacks", Newsday, October 10, 2001

[2] In the 12 months preceding October 2000; supermarket growth rates were much higher than the overall market growth as this distribution channel just started to pick up speed. Typically, energy bars were sold at convenience stores, sports stores and cafeterias.

[3] "FOOD DAY / WEDNESDAY / BAR EXAM / In which we take a critical look at the leading energy snacks", Newsday, October 10, 2001

be an advantage. Since an athlete would typically consume energy gel before, during and after exercising, demand was multiplied by using several units per work-out. Mike Pieroni, head coach of the Boston Athletic Association running club, stated that energy gels did seem to aid runners whose energy was flagging: "Ninety percent of the people who have used (an energy gel) say it really helped. It gives them a boost. They were starting to crash, and it made them feel great. Few have had stomach problems with it."[4]

The Energy Gel Project

Wickler's business plan for the Energy Gel project pictured a very promising performance. Due to the continuing enthusiasm for fitness, future growth rates in the US carbohydrate energy food market overall were expected to remain at over 12% annually for at least five more years.[5] An innovative new product, such as energy gel, could be expected to expand even faster. HPC's state-of-the-art R&D department already signaled that it could complete the development of a competitive gel composition in a matter of weeks. The expenditures for the remaining product tests were estimated at about $250,000 over and above the already invested $2.25 million. From a marketing perspective, a new energy gel line would help to supplement the existing offerings and lead to a comprehensive product portfolio of carbohydrate energy food products. All in all, Wickler was convinced that the energy gel would assure HPC's future growth in the increasingly competitive energy bar market.

From the standpoint of production, Wickler's business plan built upon the fact that HPC's carbohydrate energy food unit had all the necessary know-how to successfully set up a new energy gel product line. Because of the similarities in the products' mixing processes, even the same mixing devices could be used. As these were only running at approximately 60% of their capacity of 66 million energy bar units of average size per year, the Energy Gel project could significantly reduce its upfront investments.[6] One unit of the smaller-sized energy gels could be produced on the existing machinery in approximately half the time of an average energy bar.[7] In contrast, an investment in the smallest available new mixing equipment with the necessary functionality would cost about $3.0 million[8] today and be utilized only about 25% in 2002 (first year of full-time production). Despite the saving in mixing equipment, a $1.5 million investment was required to modify the existing buildings to accommodate the new line, and a $2.0 million investment was required to purchase the necessary packaging machinery. HPC used a 10-year straight-line depreciation for the mixing and packaging machinery, and a 15-year straight-line depreciation for the building modifications. Both expenditures could be financed with a long-term bank loan at 8.25% interest.

Estimated market growth for energy gels was favorable and Wickler was confident that the demand for HPC's energy gel brand would rise at least at this rate. Exhibit 5 shows the expected sales and costs of good sold for HPC's energy gel brand for the next 10 years. (These figures reflect costs of good sold of 60% of sales, excluding depreciation). However, some of this growth was expected to come from the substitution of energy gels for energy bars.

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[4] Quoted in: "Eat and run; Marathoners experiment to find a winning diet", Boston Herald, April 10, 2002.

[5] HPC estimate.

[6] In 1998 HPC invested $ 7.5 million into new mixing equipment for its energy bar product line, expected to have a useful life of 10 years with no salvage value.

[7] The existing machine could easily absorb the necessary production volume for energy gels in 2001: production capacity of bar units (66 million) minus projected production of bars (43.3 million) equals 22.7 million bar units. This amount is a lot larger than the planned energy gel production in bar equivalents (= 0.5 x 4.3 million).

[8] The annual mixing volume translates into a maximum production capacity of 40 million energy gel units of average size.

Wickler and his team were eager to start the Energy Gel project as soon as possible. Together with the R&D and marketing departments, they already invested $2.25 million (as mentioned above) in researching the potentially most successful flavors, and they wanted to recover this expenditure with the launch of the first Energy Gel products. Although variable production costs were slightly higher than those for energy bars, the lower fixed production costs and the premium price of the new product promised to make the Energy Gel project another success story for HPC's energy food division.

The heated discussion revolved mainly around two issues concerning the product introduction: A potential cannibalization of HPC's highly profitable energy bar line (exhibit 4 shows past and projected future performance of the energy bar product line), and the accounting for the usage of existing excess capacity of the mixing devices. Whereas Wickler assumed these costs to be sunk and therefore without relevance for the new project costs, Mark Leiter, the product manager of HPC's energy bar line, argued that the new product introduction had to be valued on a stand-alone basis to see if, independently of these special circumstances, the energy gel introduction was a profitable step for HPC to take.

Capital Budgeting Process at HPC

HPC had a capital budgeting and project evaluation process in place, aimed at evaluating the technical, strategic and financial viability of proposed commercialization projects. Only when a project was deemed to be technically implementable and strategically desirable for HPC overall, was a financial evaluation carried out. The financial evaluation was based on two criteria: (1) the payback period and (2) the return on invested capital (ROIC).

The payback period was the length of time required for the project to repay the initial investment after the starting date. Only capital invested in fixed assets, income, and expenses related to the project were used to calculate the repayment period. HPC required a payback period of less than 7 years for its investments.

The ROIC was calculated by dividing the 10-year average net income by the 10-year average invested capital in the project. The invested capital included investment in net fixed assets plus investment in net working capital. Any profits or losses incurred before the project became operational were included in the first profit and loss period of the financial evaluation. HPC required that the ROIC exceed its hurdle rate of 15%. Wickler had completed HPC's financial evaluation form for the Energy Gel project. The 10-year forecast for the project, which was to start in January 2001, is given in Exhibit 5.

Different Evaluation Approaches to the Energy Gel Project

Despite the existence of a uniform capital budgeting process, there was still a good deal of debate and confusion about how to correctly evaluate HPC's Energy Gel project. In essence, three different proposals were brought forward and heatedly discussed within the management team:

1. *Direct costing basis*, advocated by Harry Wickler, vice-president business development
2. *Full costing basis*, advocated by Mark Leiter, product manager of Quickpro energy bars
3. *Equipment-based costing,* advocated by Frank Nanzen, corporate controller

Direct costing basis. Wickler and his development team strongly pushed for an incremental cost and contribution approach (exhibit 5). With this approach, the Energy Gel project considered only variable revenue and investments, which could be directly identified with the decision to produce the Energy Gel. Specifically, Wickler considered the incremental investment in building modifications ($1.5 million) and new packaging machinery ($2.0 million), but did not consider any costs for the use of existing facilities.

Wickler's argument was that the use of existing facilities should not be included in his evaluation, as the investment in these facilities had already been undertaken in the past. He claimed that HPC as a whole would be better off if the Energy Gel project could make use of the unused capacity of the mixing equipment. The calculations, as shown in exhibit 5, resulted in a payback and ROIC far better than the required 7 years and 15% respectively. Wickler concluded that this clearly indicated that the Energy Gel project should not only be approved but also started as soon as possible.

Full costing basis. Mark Leiter, product manager of HPC's Quickpro energy bars, was infuriated when he heard that Wickler was planning to use the free capacity of his Quickpro mixing device without reimbursing him, while his business unit had to cover the full costs of the initial investment. He viewed Wickler's approach as free riding on the existing assets of the company. In his opinion, the Energy Gel project should be evaluated as a stand-alone business, which would be fully accountable for all investments and costs related to it. Hence, the Energy Gel project would need to prove its viability after considering an investment for a new $3 million mixing machine. As this was the situation that Leiter faced when he set up the Quickpro energy bar business, he felt that the full cost approach would best reflect the true potential of the Energy Gel project.

He further argued that the introduction of Energy Gel would cannibalize the unit sales of his Quickpro energy bar business by roughly 10% per year, thereby severely distorting the contribution margins of his business line. Since Leiter and his colleagues received a rather substantial variable performance bonus on the basis of the contribution margin, he demanded that Wickler account for a transfer payment in the Energy Gel project calculation, which would compensate him for the lost sales due to cannibalization.

Moreover, Leiter maintained that, due to the long-run increase of the overall level of business activity, the Energy Gel project would inevitably lead to a higher overhead base across the whole firm, which Wickler did not account for in his evaluation. Even though decisions to spend more overhead dollars were generally made separately from decisions to increase business activity (i.e. increase in overall volume, additional facilities etc.) Leiter felt that the Energy Gel project should also account for the increase of overhead costs. Since his department was highly occupied with the Energy Bar business, his team did not have much free management capacity and thus would not be able to perform all the activities on behalf of the Energy Gel project. He estimated that Wickler would incur the same selling expenses on a per unit basis as the Energy Bar line. In addition, general and administrative expenses were expected to equal 12% of the Energy Bar's general and administrative expenses in 2001 and grow at 8% per year thereafter.

Equipment-based costing. Frank Nanzen, corporate controller, closely followed the arguments between Wickler and Leiter. He finally suggested a third approach which would not only smooth the differences between Wickler's and Leiter's approaches, but which in his view would also be the correct way of evaluating the Energy Gel project. He believed that the direct and the full costing methods both had serious flaws, which his method would help overcome. As Nanzen recognized that the Energy Gel project would take advantage of the 40% of unused capacity of the mixing machine, he recommended a pro-rata approach. He argued that this excess capacity could not be provided for free and that Wickler would need to make a transfer payment -- similar to a rental fee -- to Leiter. This pro-rata rental fee would cover costs directly related to the use of the equipment and help recover Leiter’s investment in the machine. Even in the case of a high ROIC on a purely direct costing basis, the project would be questionable if the ROIC of the project was unattractive after consideration of the shared use of existing facilities. Under these circumstances, HPC would look for a more profitable product. In general, a project that did not require an investment in additional facilities should not be judged as more attractive than another, practically identical project that did. Hence, the equipment-based approach was a useful way of putting various projects on a common ground for purposes of *relative* evaluation.

Nanzen contended that the direct costing approach was an inadequate measure of a project's worth when existing facilities with a known future use would be utilized extensively. Nanzen also called

attention to potential pricing distortions when solely using the direct approach. Under the direct method, the new Energy Gel would not be charged for the use of the mixing equipment and, therefore, could be priced substantially lower than under the pro-rata method. At the same time the full burden of the mixing machine would still be borne by Leiter's energy bar business, negatively impacting his contribution margin.

The decision

Florence Vivar, CFO of HPC, was well aware of the arguments for and against the launch of the Energy Gel project. She was now wondering which approach – if any -- to choose from the three presented to her. What would be the fair and correct method to use to evaluate the project? Could she confidently rely on a single approach or were there additional points that were not yet reflected in any of them?

After seemingly endless discussions about the valuation process in the past few weeks, she decided that HPC would need to rethink its capital budgeting process in general and establish clear guidelines regarding project evaluation. HPC's problem was not one of capital rationing; rather, HPC faced the challenge of finding enough good solid projects that would employ capital at an attractive return on investment. It was therefore crucial to analyze the expansion plans of HPC's various food and drink units using a capital budgeting process that would ensure making the correct investment decisions.

Exhibit 1: Consolidated Balance Sheet of High Performance Corporation, Fiscal Year Ended December 31, 1999 ($ millions)

Assets	
Cash and cash equivalents	98
Receivables, less allowances for doubtful accounts	126
Inventories	131
Prepaid expenses and other current assets	77
Total current assets	432
Land, buildings, equipment (at cost, less depreciation)	486
Intangible assets	262
Total assets	**1180**
Liabilities and Stockholder' Equity	
Notes payable	142
Accounts payable	125
Current portion of long-term debt	35
Other current liabilities	222
Current Liabilities	524
Long-term debt	185
Deferred income taxes	32
Other noncurrent liabilities	190
Total liabilities	931
Stockholders' equity	
Preferred stock issued	7
Common stock issued	337
Retained earnings	495
Less common stock in treasury, at cost	-530
Deferred compensation	-21
Accumulated other comprehensive income (loss)	-39
Total stockholders' equity	249
Total liabilities and stockholders' equity	**1180**

Exhibit 2: Consolidated Income Statement of High Performance Corporation, Fiscal Year Ended December 31, 1999 ($ millions)

Sales	**1904**
Costs and expenses:	
Cost of goods sold	**806**
SG&A	**801**
Interest, net	**34**
Unusual items	**2**
Total costs and expenses	**1643**
Income before taxes	**261**
Income taxes	**83**
Net income	**178**
Average number of common shares	**108**
Earnings per share of common stock, $	**1.65**

Exhibit 3: Common Stock Prices of High Performance Corporation and Selected Market Data (October, 2000)

Month	**Low**	**High**	**Close**
May	27.76	39.59	37.92
June	27.05	39.27	37.46
July	25.93	38.72	36.31
August	25.38	37.61	35.60
September	25.32	37.99	36.67
Short and Long-Term Bond Rates			
90-Day Treasury Bills	6.06%		
One-Year Treasury Bonds	6.06%		
Five-Year Treasury Bonds	5.94%		
Ten-Year Treasury Bonds	5.90%		
Thirty-Year Treasury Bonds	5.95%		
Ten-Year AA Corporate Bonds	7.71%		
Ten-Year A Corporate Bonds	7.80%		
ß (HPC)	0.7		
Debt Rating (HPC)	AA		

Exhibit 4 Historical and Pro-Forma Performance of the Energy Bar Business, 1996 - 2005 (as of June 2000)

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
						Pro-forma	*Pro-forma*	*Pro-forma*	*Pro-forma*	*Pro-forma*	*Pro-forma*
Units [1)]	million	25	28.0	31.4	35.2	39.4	43.3	47.6	51.9	56.1	60.6
Sales	$ million	45.3	52.0	59.8	68.7	78.8	88.8	100.0	111.8	123.8	137.1
- Cost of Goods Sold (incl. Depreciation)	$ million	23.7	25.0	29.9	36.4	40.4	43.4	49.0	54.4	60.4	66.9
- Advertising Expense	$ million	4.2	4.5	5.3	6	7.1	8.0	9.0	10.1	11.1	12.3
- Selling Expenses	$ million	2.7	3.3	3.6	3.6	4.4	4.9	5.5	6.2	6.8	7.6
- General and Administrative Expenses	$ million	8.0	8.8	9.7	10.7	11.8	12.7	13.7	14.7	15.6	16.5
Earnings before Taxes	$ million	6.7	10.4	11.3	12.0	15.1	19.8	22.8	26.4	29.9	33.8
- Taxes	$ million	2.3	3.6	4.0	4.2	5.3	6.9	8.0	9.2	10.5	11.8
Net Income	$ million	4.4	6.8	7.3	7.8	9.8	12.9	14.8	17.2	19.4	22.0

[1)] Unit sales do not account for potential 10% cannibalization as discussed by Mark Leiter.

Exhibit 5 HPC Financial Evaluation Form - Energy Gel Project [$ million]

Project Name:	Energy Gel
Project Start Date:	January 2001
Project Operational Date:	June 2001

Project Request Detail ($ million)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Land	0										
Buildings	1.5										
Machinery and Equipment	2										
Subtotal	*3.5*										
Less: Salvage Value	0										
Total Project Cost	3.5										

Profit and Loss Pro-Forma	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Yr Avg
Units (million)	4.2	10.0	11.8	13.6	15.2	16.8	18.1	19.3	20.2	21.2	15.00
Sales	6.3	15.0	17.7	20.4	22.8	25.2	27.1	28.9	30.3	31.8	22.55
- Cost of Goods Sold (incl. Depreciation)	4.0	9.3	10.9	12.5	13.9	15.4	16.5	17.6	18.4	19.3	13.78
Gross Profit	**2.3**	**5.7**	**6.8**	**7.9**	**8.9**	**9.8**	**10.6**	**11.3**	**11.9**	**12.5**	**8.77**
- Advertising Expense	2.2	3.3	2.7	2.5	2.3	2.5	2.7	3.0	3.2	3.4	2.78
- Selling Expense											
- General and Administrative Expense											
- R&D and Market Research Expense	2.5										
Earnings before Taxes	**-2.4**	**2.4**	**4.1**	**5.4**	**6.6**	**7.3**	**7.9**	**8.3**	**8.7**	**9.1**	**5.74**
- Taxes (35%)	-0.8	0.8	1.4	1.8	2.3	2.5	2.7	2.9	3.0	3.1	1.97
Net Income	**-1.6**	**1.6**	**2.7**	**3.6**	**4.3**	**4.8**	**5.2**	**5.4**	**5.7**	**6.0**	**3.77**
Cumulative Net Income	-1.6	0.0	2.7	6.3	10.6	15.4	20.6	26.0	31.7	37.7	

Invested Capital ($ million)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	10-Yr Avg
Project Costs	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Less: Cumulative Depreciation	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	
Invested Capital in Fixed Assets	**3.2**	**2.9**	**2.6**	**2.3**	**2.0**	**1.7**	**1.4**	**1.1**	**0.8**	**0.5**	**1.9**
Cash	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.3
Receivables	0.7	1.8	2.1	2.4	2.7	3.0	3.2	3.4	3.6	3.8	2.7
Inventories	0.4	0.9	1.1	1.3	1.4	1.6	1.7	1.9	1.9	2.0	1.4
Accounts Payable	0.3	0.7	0.8	0.9	1.0	1.2	1.3	1.4	1.4	1.5	1.1
Total Working Capital	**0.9**	**2.2**	**2.6**	**3.1**	**3.4**	**3.8**	**4.0**	**4.3**	**4.5**	**4.8**	**3.4**
Total Invested Capital	**4.1**	**5.1**	**5.2**	**5.4**	**5.4**	**5.5**	**5.4**	**5.4**	**5.3**	**5.3**	**5.2**

Payback Years from Operational Date	
Total Project Cost	3.5
Number of Full Years to Pay Back	4

Return on Invested Capital (ROIC) - 10-Year Average	
Net income	3.77
Invested Capital	5.21
ROIC	72%
Hurdle Rate	15%