

## **IS Kawerau – Existing Industry & Support Services Background Study**

### **1. Background**

Kawerau was founded in 1953 specifically to cater to the Tasman pulp and paper mill. The location was chosen as the site for the mill complex due to the ready availability of geothermal energy and fresh water, and its close proximity to the large supply of radiata pine from the Kaingaroa forest. It is one of the youngest towns in New Zealand and was purpose built for heavy industry.

Nearly 60 years after original development, Kawerau still caters to heavy industry, with wood processing and manufacturing being the main sector for economic and employment activity [1]. Kawerau's history in wood processing has developed a strong base of operating, engineering and service expertise; which importantly have supported the establishment of a heavy engineering cluster, offering internationally competitive skills in the manufacture, fabrication and servicing of equipment and components for the wood processing, pulp and paper, energy, marine and construction sectors [2]. A range of these companies export their products and services to offshore clients.

A number of consulting and professional services companies in the region have developed strong forest industry knowledge, providing world leading sustainable forest management expertise; along with skills in engineering consulting, design and project management, geothermal and environmental services [2].

A major contributor to the success of industry at Kawerau has been the access to geothermal energy from the Kawerau geothermal field. Into the future, this field not only has the capability to substantially increase electricity production, but can support commercial opportunities needing a consistent direct heat application.

The following sections outline a cross-section of entities operating in Kawerau, covering a range of activities from heavy industry and engineering support, through to energy generation and local support services.

### **2. Heavy Industry**

#### **2.1 *Norske Skog Tasman (NST)***

Norske Skog, with its head office in Norway, is one of the world's largest suppliers of newsprint and also supplies magazine and directory paper. In addition, it is one of the world's largest recyclers of newspapers and magazines to produce publication papers [3].

Annual paper production from NST's Kawerau facility is approximately 300,000 tonnes [4], supplying around 80% of New Zealand's newsprint and telephone directory requirements [5]. The balance of production is exported throughout Asia and the South Pacific.

The NST mill is unique in the world, with 100% of the steam used to produce pulp and dry the paper being generated from geothermal [4]. The majority of NST's electricity is also provided, either directly or indirectly, from geothermal generation. Further planned geothermal development is forecast to lift the contribution of geothermal to above 90% of NST's total electricity demand by 2013 [4].

Considerable innovation in energy, logistics and service systems, together with regular upgrading of paper machines has led NST to highly efficient and effective supply capabilities on a sustainable basis [5].

[www.norskeskog.com/Business-units/Australasia/Norske-Skog-Tasman](http://www.norskeskog.com/Business-units/Australasia/Norske-Skog-Tasman)

## **2.2 SCA Hygiene Australasia (SCA)**

SCA is one of the world's largest personal care product companies, the world's third-largest supplier of tissue and Europe's second-largest packaging company [6]. Sales are conducted in some 100 countries with revenues in 2010 amounting to EUR 11.5 billion. The SCA Group employs approximately 45,000 people [6].

SCA's hygiene portfolio includes global brands TENA and Tork, complemented by strong regional brands Libra, Sorbent, Handee, Deeko, Purex and Treasures [6]. SCA has taken a natural lead in sustainable development, and is internationally recognised as a global leader across all its business areas. SCA's Kawerau facility produces 60,000 tonnes of end product, with approximately 50% exported to Australia and 50% consumed domestically [7].

Internationally, SCA has set a goal to reduce its CO2 emissions by 20% by 2020 [8]. However, its tissue plant at Kawerau has already managed to reduce emissions and match this target in a single stroke – but by the double [8]. As an integral part of the tissue-making process, steam at the Kawerau tissue plant was previously produced by non-renewable gas fired boilers. In 2009 SCA was able to adapt plant production to make use of geothermal steam, resulting in a reduction of the plant's CO2 emissions by 39% [8].

This sustainable solution is the result of a mutual agreement and commercial contract for supplying SCA's plant with heat from the Ngati Tuwharetoa Geothermal Assets' (NTGA) geothermal steam field supply [8].

[www.sca.com/en/home](http://www.sca.com/en/home)

## **2.3 Carter Holt Harvey Tasman (CHH Tasman)**

Carter Holt Harvey has been operating in New Zealand for over 100 years and is also an important contributor to the Australian economy [9].

The CHH Tasman mill produces 285,000 tonnes per year of both softwood (radiata pine) and hardwood (eucalypt) bleached and unbleached kraft pulp. Annual fibre use is approximately 1.3 million tonnes, made up from 450,000 tonnes of radiata logs, 300,000 tonnes of eucalypt logs, and 550,000 tonnes of sawmill chip [7]. CHH Pulp is manufactured from responsibly managed plantation-grown wood [9].

CHH Tasman's target markets are primarily New Zealand and Australia for bleached pulps, with fibre cement pulp being sold on a global basis [7].

[www.chhpulpanpaper.com](http://www.chhpulpanpaper.com)

## **3. Engineering Support**

### **3.1 Allied Industrial Engineering (AIE)**

AIE is a heavy mechanical engineering service company specialising in component manufacturing, maintenance and re-engineering services including machining, balancing, fabrication, fitting, design, and draughting and project management [10].

Having started business as a specialised machine shop in 1994, AIE now offers a total range of engineering services and is recognised for its heavy engineering expertise and ability to provide total mechanical engineering solutions [10].

AIE has some of the largest machining equipment in New Zealand and have recently completed a workshop expansion to house a Double Column 5 face CNC machine [10].

AIE's services include: [10]

- Heavy Machining
- CNC Machining
- Balancing
- Fabrication
- Fitting
- CAD Design Draughting
- Project Management and Engineering
- General Machining
- Quality Management
- Information Systems

Major industries serviced include: pulp and paper, defence, hydro power generation, thermal and geothermal power generation, and dairy [10].

[www.aie.co.nz](http://www.aie.co.nz)

### 3.2 ***Kawerau Engineering***

Kawerau Engineering was established in 1965 as a plant maintenance provider and general engineering works. Although industrial maintenance remains a major part of their business, the diverse range of skills and knowledge accumulated through maintenance activities has enabled the company to grow into a highly capable fabrication facility [11].

The major workshop focus is a full range of fabrication and plate forming activities. Work carried out includes pressure vessels, heat exchangers, tanks, flue stacks and ducting, hydropower pen stocks, turbine castings and marine keels. Complementing the heavy fabrication capacity are stainless steel fabrication, plate processing and a fitting/machine shop [11].

In addition to heavy industry, Kawerau Engineering is one of the world's foremost suppliers of custom keel and bulb packages in the 40' – 150'+ range across all yacht classes. Keels manufactured by Kawerau Engineering feature on many leading yachts in the world's premier races, with Virbac-Paprec 3 (Barcelona world race winner 2010/11) featuring one of the world's most radical keels [11].

The company's quality system is tailored to suit its operations & approved by Lloyds to ISO9001 [11].

[www.kaweraueng.co.nz](http://www.kaweraueng.co.nz)

### 3.3 ***Gouk and Sullivan BOP (GSBOP)***

GSBOP specialises in the servicing of all electromechanical rotating equipment and provides comprehensive armature, generator & motor repair services. Their facilities enable them to rewind all types of AC and DC units up to 15MW in their workshop or larger machines on site [12].

Mechanical repairs undertaken in their workshop include shafts, bearings, housings repair and general welding operations [12]. They also offer a full on-site repair service, including motor rewinding, overhauling and balancing, together with a preventative maintenance inspection facility and full 24 hour, seven day service [12].

[www.gsbop.co.nz](http://www.gsbop.co.nz)

### 3.4 ***Asmuss-Brooking***

Asmuss-Brooking supplies engineering products and services to major industries including pulp & paper, geothermal power generation, forestry & food processing [13]. Special expertise is also available for conveyor belt installation and repair, hydraulic hose supply and fitting, and the manufacture of rubber/gasket sealing products [13].

Asmuss-Brooking is an authorised distributor for an extensive range of local and international engineering brands and products. Many of the products are imported through the Asmuss Group of companies, which diversify into valves, plastics and steel, backed by technical expertise. Asmuss-

Brooking are distributors of over 250 brands and products including SKF, Weldwell, Eaton Hydraulics, Klinger, Garlock Renold & Viking conveyor products and services, and power transmission products including chain, sprockets, Timing and Vee Belts.

Services include machining and manufacture of engineering products for special applications.

[www.hja.co.nz/asmuss-brooking-home](http://www.hja.co.nz/asmuss-brooking-home)

## **4. Sawmilling**

### **4.1 *Carter Holt Harvey Woodproducts NZ***

CHH Woodproducts is New Zealand's most comprehensive wood manufacturing, distribution & sales business; manufacturing and marketing a full range of wood based building products, including timber, plywood, laminated veneer lumber (LVL), particleboard and a range of interior decorative products [14].

CHH Woodproducts NZ's Kawerau facility is one of nine in the New Zealand based group and produces approximately 350,000 m<sup>3</sup> of sawn product per year from a log intake of 630,000 m<sup>3</sup> [7]. Product is sold domestically (60%) and exported (40%), with the Middle East, Asia and South Africa being the main export markets [7]. Approximately 20,000 m<sup>3</sup> of material is sent from the site for remanufacturing in Rotorua and Kaingaroa [7].

Power supply to the mill is largely from geothermal steam, although some process steam is taken from the nearby pulp and paper-mill complex [7].

[www.chhwoodproducts.co.nz](http://www.chhwoodproducts.co.nz)

### **4.2 *Sequal Lumber***

The Sequal Lumber sawmill opened in 2008 and produces dimensional lumber for world markets. The company is mainly involved in the sawmilling and trading of Radiata Pine timber products throughout New Zealand and to the Australasian, Asian and Middle Eastern Markets [15].

Annual production is 75 000 cubic metres of lumber from a log input of 150 000 cubic metres [7]. General uses of the lumber include furniture, outdoor, construction, framing applications and packaging [15].

[www.sequallumber.co.nz](http://www.sequallumber.co.nz)

## **5. Forest owners & managers**

### **5.1 *Hancock Timber Resources Group***

The Hancock Timber Resource Group (HTRG) was founded in 1985. It is based in Boston, Massachusetts, USA and is a division of Hancock Natural Resource Group, Inc., a registered investment adviser and wholly owned subsidiary of Manulife Financial Corporation [7]. As a TIMO (Timberland Investment Management Organisation), Hancock develops and manages globally diversified timberland portfolios [7]. The New Zealand forest assets of HTRG were previously owned by Fletcher Challenge Forests and Carter Holt Harvey, having been acquired since 2003 [7].

HTRG's interests in the CNI are represented through a number of companies controlling various plantation forests. HTRG's CNI productive forest assets include approximately 65,000 hectares of forest on freehold land and 143,000 hectares of forest owned under lease or cutting rights, giving a total productive forest estate of around 207,000 hectares [7].

[www.htrg.com](http://www.htrg.com)

## **5.2 Kaingaroa Timberlands**

Kaingaroa Forest is one of the crown jewels of international forestry and one of the oldest and largest softwood plantations in the world [16]. Kaingaroa Timberlands is majority-owned by Harvard Management, the investment arm of the Harvard Endowment Fund, which purchased the estate in December 2003. In October 2006 the NZ Superannuation Fund bought a minority interest in the estate from Harvard Management [7].

The estate comprises Kaingaroa Forest and a number of smaller forests including Whakarewarewa and Rotoehu. Most of the estate is held under Crown Forestry Licences, with Treaty of Waitangi settlements resulting in the majority of the land now being owned by a range of Maori iwi in the region, with Kaingaroa Timberlands having the right to grow and harvest forest crops [7].

The 189,000 hectare Kaingaroa Forest makes up the bulk of Kaingaroa Timberlands' assets, with much of the total forest now growing its third crop of trees [16]. Other assets include a log processing plant at Kaingaroa, a log yard at Murupara and a nursery at Te Ngae, Rotorua [7].

[www.kaingaroatimberlands.co.nz](http://www.kaingaroatimberlands.co.nz)

## **5.3 Matariki Forests Limited**

Matariki Forests is a joint venture between Rayonier NZ Limited, RREEF Infrastructure Investments (the global alternative investments business of Deutsche Asset Management) and, since 2006, AMP Capital Investors. The estate encompasses forests purchased from CHH Forests in October 2005 [7].

The Matariki estate in the CNI comprises some 12,000 hectares of forest, mainly radiata pine but also eucalypt [7]. Some of the area is freehold land as well as land held under lease, Forestry Right, and Crown Forestry Licence [7].

[www.matarikiforests.co.nz/](http://www.matarikiforests.co.nz/)

## **5.4 PF Olsen**

PF Olsen is a leading provider of independent professional forestry services in New Zealand, managing significant plantation forest estates and harvesting and marketing millions of cubic metres of logs [17].

PF Olsen provides a wide range of professional forestry services to a diverse range of clients including TIMOs, farmers, investors, Maori groups, government agencies and others [17].

[www.pfolsen.com](http://www.pfolsen.com)

## **6. Forestry Contractors**

### **6.1 Kajavala Forestry Limited (KFL)**

KFL was established in 1972 and operates as a central processing & log management company. Specialist skills include central processing, integrated logistics and log value recovery [18].

KFL currently employs 50 people, with the provision of opportunities for career advancement giving KFL one of the lowest staff turnovers in New Zealand forestry. KFL has a log warehouse and processing capacity of 1 million tonnes per annum [18].

[www.kfl.co.nz](http://www.kfl.co.nz)

## **6.2 Pederson Group**

In 2004, Pedersen Group took over operation and maintenance of the CHH Woodproducts Kawerau sawmill and within one year delivered significant savings to CHH [19].

In 2006, Pedersen Group entered into a preferred supplier agreement for the CHH Tasman mill operation - providing log yard, mobile plant, whole log chipping, log debarking and hogging services [19]. Also in 2006, Pedersen became the provider of chipping services to NST, having designed, developed and purpose built a 142-metre chip conveyor, suspended 22 metres in the air, to efficiently deliver chip to the NST chip pad [19].

Since the partnership began, Pedersen has delivered considerable gains to NST, through an improved accepts strike rate driven by improved chip quality [19].

[www.digihost.co.nz](http://www.digihost.co.nz) and [www.pedersen-group.co.nz](http://www.pedersen-group.co.nz)

## **7. Energy Providers**

### **7.1 Mighty River Power (MRP)**

Mighty River Power is a renewable dominated energy company with both hydro and geothermal generation. Generation assets include nine hydro stations on the Waikato River (1040 MW), four geothermal stations (386 MW, together with partners) and a four-unit gas-fired generation plant (175 MW) [20].

In September 2006 MRP was granted consent for the development of a 90 - 100 MW double flash geothermal power station to be built on the NST mill property at Kawerau. Construction began in January 2007 with final commission of the plant in August 2008 [21]. The project was completed over a month ahead of schedule, under budget and able to generate 10% more energy than initially specified [21].

Plant construction included a 10 year commercial off-take agreement between MRP and NST, with a total project cost of NZ\$300 million [20].

[www.mightyriver.co.nz](http://www.mightyriver.co.nz)

### **7.2 Bay of Plenty Energy (BOPE)**

BOPE's Kawerau geothermal assets consist of two plants, providing an embedded form of generation within the BOPE network [22]. The first of two developments was commissioned in 1989 and generates 2.4 MW of electricity, while the second was commissioned in 1993 following on from the success of the first and generates 3.5 MW of electricity [22].

In BOPE's plants, geothermal fluid from the Kawerau geothermal field is utilised to generate electricity via ORMAT binary energy converters [22].

[www.bope.co.nz](http://www.bope.co.nz)

### **7.3 Eastland Group**

Eastland Group is a collection of businesses that span the logistics, aviation and energy industries, with its heart in Gisborne but with operations throughout the nation [23].

Eastland Generation Limited, a subsidiary of Eastland Group, owns the 'KA24' 8.3 MW Ormat embedded power station at Kawerau. Operation and maintenance is contracted to MRP.

[www.eastland.co.nz](http://www.eastland.co.nz)

#### **7.4 Ngati Tuwharetoa Geothermal Assets (NTGA)**

NTGA is the Kawerau geothermal field's pre-eminent supplier of geothermal steam for direct industrial use, while also providing top up brine to MRP's 106 MW geothermal power plant. NTGA, under its current consent, has permission to extract 44,600 tonnes of geothermal brine per day [24].

NTGA's direct industrial heat supply is understood to be the world's single largest application of geothermal to industry [25]. NTGA directly supplies three core customers in NST, CHH Woodproducts and SCA, but a further customer indirectly through NST, being the CHH Tasman pulp mill [26].

### **8. Local Support Services**

#### **8.1 Kawerau District Council (KDC)**

The Kawerau Borough was officially created in April 1954 [27]. The modern day KDC provides rules and guidelines for land use and development in its district plan, with regulatory framework orientated towards heavy industry. The district plan allows for a wide range of activities provided operations meets performance and environmental standards [27].

KDC recognises that the town's industrial base is its foundation, and supports its expansion through providing an enabling regulatory environment for industrial development. KDC believes economic development supports the local community by contributing to the wellbeing and prosperity of residents, business, industry and local government.

KDC is committed to working with the community to meet the challenge of expanding Kawerau's industrial base, increasing local job growth and maintaining its position as a unique and important contributor to the wider region and New Zealand.

[www.kaweraudc.govt.nz](http://www.kaweraudc.govt.nz)

#### **8.2 Kawerau Enterprise Agency Inc (KEA)**

KEA was established in 1985 with assistance from Tasman Pulp & Paper Company Limited. Its role is to ensure Kawerau remains a sustainable community by developing and maintaining robust economic and social structures in Kawerau. It aims to achieve this by enhancing the Community's wealth through maximising the use of resources, growing business and attracting new business [28].

[www.kea.org.nz](http://www.kea.org.nz)

#### **8.3 Toi-EDA**

Toi-EDA is the Eastern Bay of Plenty Regional Economic Development Agency set up by the three territorial authorities (Kawerau, Opotiki and Whakatane) and the Bay of Plenty Regional Council, working together with local Maori iwi [29].

With the recent adoption of an ambitious economic development plan, Toi-EDA has a strong focus on its vision of enhancing the Eastern Bay of Plenty's economic growth and resultant wealth for its people [29].

It is run by talented professionals with years of experience with the Eastern Bay of Plenty Development Board. Focus is on projects relating to energy, forestry, aquaculture, transport and logistics, and marine industries [29].

Toi-EDA's primary goals are to: [29]

- Attract people to work, live and play in the Eastern Bay of Plenty
- Encourage alignment of Maori economic development activity and Toi EDA activity

- Align training and education with employment needs
- Advocate for improved infrastructure and transportation
- Foster communication with the community and partners

[www.toi-eda.co.nz](http://www.toi-eda.co.nz)





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