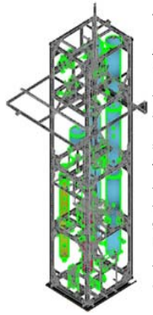
Project – Australia 1 & 2
Twin 40,000 metric ton per year Biodiesel plants for Adelaide and Picton, Australia

The Customer

ENERGEA
biodiesel technology

One of the world leaders in Biodiesel technology, ENERGEA Umwelttechnologie GmbH www.energea.at , approached Powertech International GmbH www.powertech.at (PTI) to produce the detailed engineering, construct and commission a Biodiesel Plant in Australia.



The Client

Australian Renewable Fuels Ltd www.arfuels.com.au (ARF) was started by parent company, Amadeus Energy Ltd, to specialise in the production and supply of Biodiesel throughout Australia. ARF was quickly able to gain the position of leading Biodiesel group on the continent, soon building a market capital of over AUS$150 million.

arfuels
AUSTRALIAN RENEWABLE FUELS LIMITED

The company, based in Perth, Western Australia, intend to supply the domestic market as well as exploiting the global shortage of Biodiesel by exporting up to 80% of production.

To meet their needs, ARF selected the ENERGEA Continuous Trans Esterification Reactor process.

Project Scope

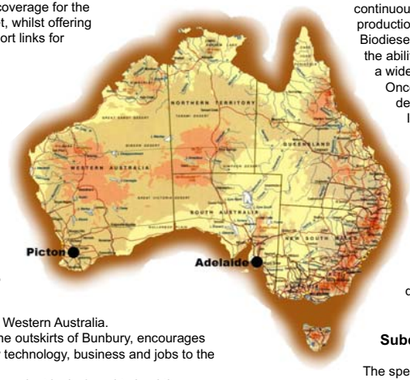
The original requirement was to design and build a 40,000 metric ton per year plant to produce Biodiesel, raw glycerine and fertiliser. The main feedstock for this plant would be tallow, although the plant should also be designed to convert other fats and vegetable oils.

Supply of ancillary services, such as compressed air, steam and cooling water etc. was to be organised along with civil construction by ARF directly with local contractors.

With the design of the first plant well under way and following stock market floatation, ARF placed another order for a second identical plant for a different site in Australia. Both locations are excellent for logistics, ensuring good coverage for the domestic market, whilst offering excellent transport links for export.

Locations

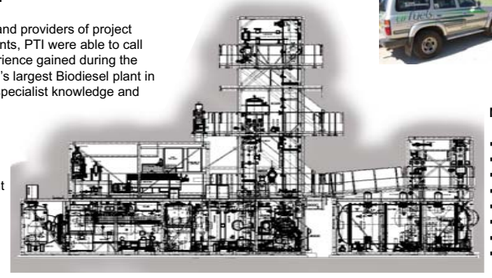
The first plant was to be built at Largs Bay, Adelaide, South Australia.
Adelaide is the capital of South Australia, with a population of over a million it is one of the largest cities in the country.
The site is well served, having an established petro-chemical industry complete with specialist suppliers and services in the area. The re-development of the brown-field site also brings the advantages of excellent rail and road links, as well as a deep sea port.



The second plant was to be built in Picton, Western Australia.
Picton, situated 200km south of Perth on the outskirts of Bunbury, encourages the development of initiatives bringing new technology, business and jobs to the area.
Built on a growing industrial estate the Picton plant is designed to lead the way in the field. One of the keys to this leadership is the fuel laboratory and Research and Development facilities, which will also be valuable for educational and training purposes.

Scope of Works – PTI

As the main contractors and providers of project management for both plants, PTI were able to call upon expertise and experience gained during the development of the world's largest Biodiesel plant in Teesside, England. The specialist knowledge and contacts, built-up during previous projects using the ENERGEA process, ensure that PTI were able to provide the most effective and cost efficient solutions to the unique challenges that the twin projects presented.



Engineering Challenges

The tried and tested ENERGEA process for continuous production of Biodiesel, with the ability to use a wide range of feed stocks, is the key to both plants.
Once the process specification had been finalised, the detail engineering could begin.
It was clear that a pre-esterification stage would be required, ensuring that the feed quality for the ENERGEA Continuous Trans Esterification Reactor could achieve optimum conversion levels.

The need for a compact plant as well as the requirement of quick, accurate, efficient and safe construction on site, led to the plants being prefabricated in Austria. The container frame system used has enormous advantages, allowing the complete plant to be built, checked and disassembled ready for transporting to the site.

Subcontractors & Suppliers

The specialist contacts and relationships that PTI has built up with subcontractors and suppliers, especially in the Biodiesel field during previous projects, ensured the correct choice of partners. The partners must be dependable and able to supply the correct equipment as well as offer support and service on a global scale.

Amongst the main partners for this project, the professionalism and commitment made by companies such as RWE Solutions Austria GmbH www.rwesolutions.com (electronic control systems) and Zauner Group www.zaunergroup.com (pre-construction of plant in Austria) proved the power of having the right partners.

Major suppliers of equipment include:

- Allweiler www.allweiler.com (pumps)
- Endress+Hauser www.endress.com (instrumentation)
- Flottweg www.flottweg.de (decanter technology)
- Siemens www.siemens.com (control equipment)
- EPC www.epc.at (control valves)
- Striko www.striko.de (mixing and safety technology)
- TAB www.tab-barth.de (tanks and vessels)
- UNEX www.unex.at (heat exchangers)

Construction

Once the Austrian prefabrication of the plants had been satisfactorily completed, the individual containers were disassembled and prepared for shipment. Using ISO size containers (including lifting and securing points), the sections were then transported by road to be loaded onto a ship for the journey to Australia.

Activity on site was already intense, with the civil works and foundations nearly complete. Working closely with ARF and their local subcontractors, all of the necessary suppliers and specialist were organised to ensure the smooth erection of the plants.

7 weeks after leaving Austria the containers arrived in Australia. Once the customs and import formalities were completed the containers were back on the road again.

With the logistics and coordination finalised, the reassembly of the plant onto the foundations was a relatively straightforward task. The careful assembly and prefabrication of the equipment and pipe work in Austria really paid off, with only the minimum of readjustment required to bring the plant back together.

Throughout construction the electricians from RWE were busy wiring the plant to the control centre and connecting up and testing the computer system for the automated running of the plant. Satisfied that the plant was complete and in a safe state, commissioning and testing could begin.

Handover

In spring 2006, the Adelaide plant was officially opened by the Federal Minister for Finance, Nick Minchin.

In summer 2006, Picton was officially opened by Senator Ian Campbell, Federal Minister for the Environment and Heritage.

POWER TECH PTI INTERNATIONAL Anlagenbau GmbH

PHOTOS: AUSTRALIAN RENEWABLE FUELS - RWE - POWERTECH INTERNATIONAL