

## *ABSTRACT*

**Greenaccord, Rapolano, 4 Nov. 2004**

### **From Muddy Waters to (Clear) Income Streams: Creating Financially Viable, Bankable and Sustainable Infrastructure Projects**

#### **A Hypothetical Scenario**

The city of Bigsmoke has a population of 70,000 and services a regional area of an additional 150,000 people (a population that has grown 20% in the last 5 years). The Bigsmoke region has several large industries that are important employers and substantial contributors to the Victorian economy. In particular Bigsmoke has well established industries in irrigated horticulture (Bigsmoke broccoli having a worldwide reputation of excellence), food processing, cotton growing, wood pulp and paper products, and Smokeless Power, a private power generation company having a capacity to generate 1000MW of (coal fired) power. More recently, a fledgling viticulture and wine making industry has developed, and the unexpected gold medal being awarded to the 2002 'Bigsmoke Big Drop Chardonnay' has resulted in an growing interest in the region by visitors.

The State government has identified the Bigsmoke region as a key area for regional development and tourism consistent with its 'Great Regions of Victoria' and 'Victoria - Modern, Magic and Marvellous' policies. In the last three budgets the State government has committed substantial funds for the development of social and economic infrastructure in the Bigsmoke region, and implemented a number of programs (including a very popular television advertising campaign involving well known media, sport and entertainment personalities) in order to attract investment (in particular foreign investment), skilled personnel and tourism.

The Bigsmoke Sewerage Treatment Plant (STP) services the wastewater requirements for the entire Greater Bigsmoke region. The STP currently discharges secondary treated wastewater into Last Hope Creek under an EPA licence. The STP, however, has difficulty in meeting the licence conditions particularly as one of the food processing industries frequently exceeds the limits set under its Trade Waste Agreement.

South of the city are irrigated farms drawing groundwater from an aquifer that is over committed. Recent applications for new licences have been refused.

Technical consultants engaged three years ago submitted a report on the quality of the water ways in the Bigsmoke region. In summary the consultants found that the levels of nutrient loads and dissolved solids were too high for the long term maintenance of a healthy river system, in particular in the River Hopeless (the major tributary of which is Last Hope Creek). The consultants also found that in some key areas of the river system the high levels of salinity, other nutrients and dissolved solids were causing odours and unpleasant sights which were detracting people who would otherwise use the river and the surrounding areas for recreation, including recreational fishing.

Bigsmoke Blend Brewing and Beverage Limited (BBBB (4B)) is a long time and well established industry in the region and the region's largest single employer. In order to remain commercially competitive and to take advantage of an expanding domestic and international market for its beer, BBBB needs to significantly increase its brewing capacity. One option that BBBB is considering is to upgrade and expand its brewing facilities in Bigsmoke. However, as a major consumer of water and producer of wastewater, the upgrade and expansion of the facilities in Bigsmoke is critically dependant on BBBB being able to obtain a firm commitment that the STP will have the capacity to handle the increase in wastewater that will be produced. BBBB has indicated that without such a commitment, it will have to downgrade, if not close, its

facility in Bigsmoke and relocate to a new facility it will establish at a site it has located in Queensland.

The Board of Bigsmoke Water (**Authority**) decide to investigate ways to manage the increase in wastewater that is occurring (and likely to continue to increase in the future) and how to better use the wastewater. They commission a study and find that if the plant was upgraded and a reticulated supply system installed they could sell the treated wastewater. The initial estimates for these capital works was \$80 million (\$45 million for the upgrade works, and \$35 million for the reticulation system), and if they were able to sell treated wastewater for \$175/ML (NPV) these capital costs could possibly be recovered over a 20 to 25 year period. The Authority considers that this may be economically feasible as although users are currently paying for high quality water at a rate of \$120/ML (NPV) this is to be increased as a result of the new water policies released by the state government.

The Authority has borrowing restrictions and a shortage of capital so they decide to invite proposals from the private sector for the design, construction, financing and operation of the plant and the reticulation system and the supply of treated water to farmers and other users.

The STP is surrounded by bushland, part of which will have to be cleared for the new treatment facilities and a water storage dam. The bushland contains several species protected under State and Commonwealth legislation including the threatened Spotted Frog.

The process of treating the water is energy consumptive but produces methane which can be collected and sold or burnt to generate power, thereby generating carbon credits.

To minimise risks for the Authority, and as it will not control the design of the plant, it decides to invite proposals on the basis that the proponent secures all the necessary approvals and accepts the full financial risk of the income stream from the sale of treated water.

The Authority goes to tender and selects Australian Water Developments (**AWD**) as the successful tenderer. AWD has calculated in its initial assessments (that formed part of its proposal) that by using proven technology it will be able to design and construct the upgraded plant and reticulation system for a capital cost of \$80 million, although this technology is more expensive to maintain and likely to become obsolete in 5 to 10 years. AWD estimates that if it uses this technology, it will have to charge users \$250/ML (NPV) over an operating period of at least 20 years for the project to be 'bankable'. AWD is also considering using a more advanced technology, and whilst not yet fully proven to date it has been shown to be reliable, cheaper to operate and maintain, and has the promise of greater potential for future adaptation and upgrade to accommodate future changes. However, for the project to be bankable with this technology, AWD would have to charge users \$300/ML (NPV) over an operating period of 20 years or alternatively \$250/NL (NPV) over a 30 year period.

Bigsmoke is being considered for the headquarters of the Asia Region Water Pool, a specialist funding agency for innovative water projects in Asia Pacific being created the World Bank. A key advantage Bigsmoke has over other contenders is that the Project would allow it to position itself as a "centre of innovation" for water infrastructure projects. If the Pool is located in Bigsmoke, it is expected to enable the development of a "water technology hub" that will generate significant export revenue for the State. The Premier has told the Minister for Water to do 'whatever it takes' to close the deal.