SIGNINA CAPITAL AG

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Water Infrastructure

Quarterly Water Report
Q2 2019

I. Current Project Descriptions

Wastewater plant, NJ: A New Jersey-based Wastewater Treatment Plant where original funds were partly used to mount solar panels to increase energy efficiency of the plant, lower costs over time, and provide energy to the local municipality. The state of New Jersey requires electricity suppliers to secure a portion of their electricity from solar facilities located in NJ, creating a natural market for Solar Renewable Energy Credit (SREC) trading credits. The project not only reduces the plant's energy consumption but also improves its overall efficiency. We can surely extend our reach in this area and currently look at a broader investment opportunity in the same sector.

Sustainable Sewerage, Ontario: The Sustainable Sewerage market in Ontario currently undergoes a significant change when it comes to consolidation and strong demand for renewal of existing plants. Amongst others we are working with a public company which has developed a technology providing sewage collection and water treatment. It offers an all in one solution which is both cheaper to install and operate than traditional systems. The existing projects are all government linked and work closely with municipalities and we are currently working towards a PPP pipeline for its sewerage system. The provincial regulations regarding sewerage mean that many municipalities are required to change/install systems in the coming years. We have been implementing the first parts of the portfolio of existing projects and we will continue to implement more under the same framework. The constant diversification increased the security for the investors but also allows us to further reach into this market. The investment model has not changed, but the reach within Ontario has become broader.

Hydropower, Illinois: A lock and dam hydroelectric water power project located on the Illinois River. The site has obtained a FERC License (expires 2061) and is finalising development. Once the site is connected and producing energy it will provide power to the local municipalities and income will be generated by the power purchase agreement in place.

US Water Treatment, California: The project is a carbon capture and mineralization project based in Pittsburg, CA. The project will capture both wastewater and CO_2 emitted from a gas-fired power plant and combine these with locally sourced demolished/returned concrete as a process input material to produce several different "CO_2 sequestered" and "up-cycled" aggregate products for use by Bay Area businesses, governments and consumers in a wide range of low-carbon, high-value concrete mix designs. The wastewater and steam will be obtained from either the local power plant or from the sanitation district that can provide wastewater and the ammonia needed from their treatment plant which is located adjacent to the plant. As a result either method will use recycled water, which is legislatively supported in California. The whole process revolves around reusable and recyclable products. The carbon dioxide mitigation, waste water usage and demolished concrete process input provide a process producing recycled aggregates while reducing carbon dioxide.

II. Regional Market Information

News in Brief

- Ontario Power Generation agrees to buy Cube Hydro for $1.2bn
  https://www.power-technology.com/news/ontario-power-generation-cube-hydro/

- World Bank debuts €1.5bn SDG (Sustainable Development Goals of the UN) bond
  https://www.businessgreen.com/bg/news/3075954/world-bank-debuts-eur15bn-sdg-bond

- Ovivo Acquires Westech Industrial
  https://www.ovivowater.com/ovivo-acquires-westech-industrial/

Cowbell Brewery O&M Contract[1]

The Cowbell Brewery is located in Huron County, Ontario. It is a craft brewery featuring a state of the art facility located on a farm with over 100 acres. A contract was awarded from mid-2018 for two years to operate and maintain the wastewater treatment works for the Henry Blythe Farm which includes the Brewery Facility. The contract undertakes responsibility for the treatment plant to be in line with the ECA for the site.

Source: https://beanbar.ca/events.html

While the aim for the Brewery will be to operate the site themselves this is a significant step by obtaining a contract in the food and beverage sector. This is a change from the usual wastewater sites under operation and could lead to further projects in the sector. The brewery expects to expand the facility in the coming years which could lead to a potential design and upgrade contract. This would likely lead to another operation and maintenance contract, to transition the expansion over to Cowbell.

For our service providers this is a major step, as the food and beverage industry not just adheres to the “Clean Water Act”, but also needs to qualify for the “Safe Drinking Act” which includes fresh and drinking water. The beer and wine industry obviously require a very high standard of diligence, food security and operation excellence and we are pleased to have financed such an undertaking. We foresee more projects of that nature to be within both our Canadian Sustainable Sewerage bracket, but also grow in the US.

[1] https://cowbellbrewing.com/

Singapore's GIC Bets on Wastewater Company, Takes Stake at $2.8 Billion Valuation[2]

WaterBridge Resources deal highlights rising importance of businesses that handle wastewater from fracking

Singapore sovereign-wealth fund GIC has bought a stake in WaterBridge Resources LLC in a deal that values the Houston-based handler of oil-drilling wastewater at $2.8 billion including debt.

GIC bought a 20% interest in WaterBridge. Five Point Energy, a Texas investment firm that started WaterBridge in 2016 with $200 million of seed money, said in a statement that it and some of the company's executives sold GIC the stake.

The deal—and the lofty valuation for the three-year-old company—highlights the rising importance of businesses that handle the lakes worth of briny, polluted water that energy producers extract along with oil and gas when they hydraulically fracture shale and other rock formations. While big investors have flocked to West Texas for its prolific oil wells, they are now scrambling to manage the water spewing out of the wells at much greater volumes than crude.

WaterBridge is the largest of several companies that have sprung up[3] to help drillers with one of the most vexing problems of the process, known as fracking. In the Permian Basin in West Texas, the problem is particularly acute. Drillers in the country's most prolific oil field generate enough wastewater each day to fill more than 1,000 Olympic-size swimming pools, which has stoked concerns about the potential environmental damage of fracking.

Some wells can produce as many as 10 barrels of dirty water for every barrel of oil, though it is more commonly four to six. The water is a combination of the huge volumes of the fresh water that drillers force down into wells to crack open energy-bearing rocks and water that has been trapped in the same geologic formations as the hydrocarbons drillers are seeking.

Wastewater is either pumped back underground into so-called disposal wells or recycled and used again to hydraulically fracture new oil and gas wells. WaterBridge bought its first wastewater-handling assets in the Permian Basin in September 2017 and has been expanding its capacity by drilling disposal wells in the desert, building pipelines and water-recycling facilities and buying infrastructure from energy producers looking to raise cash and outsource their water work.

It now has both the largest system of wastewater pipelines and disposal-well capacity, according to Bluefield Research, a firm that studies water use and infrastructure.

WaterBridge typically strikes long-term deals to handle wastewater from drillers it acquires infrastructure from. In January, for instance, WaterBridge said it had agreed to a multiyear pact to handle water produced within 800,000 acres of where Concho Resources Inc. drills, as part of a deal to purchase about 44 miles of pipeline and three disposal wells from the big oil producer. The company says Concho is one of 13 producers it works with.

[2] https://www.wsj.com/articles/singapores-gic-bets-on-wastewater-company-takes-stake-at-3-billion-valuation-11558085401
[3] https://www.wsj.com/articles/the-next-big-bet-in-fracking-water-1534930200?mod=article_inline

How The World's Biggest Businesses Are Fighting Climate Change[4]

Big business is often accused of fuelling climate change. These five examples show it can also be part of the solution

The adoption of the Sustainable Development Goals and the Paris Agreement were, in addition to a call on governments, a message from and for the business and capital world. And the message is clear: businesses and capital must aim to create a positive impact on all the assets of the world.

Source: https://sustainabledevelopment.un.org/?menu=1300

They must contribute to developing an economy that is here for the world, and leave behind the exploitation of a world serving the economy. Below are a few examples of large firms making a difference:

1. Ericsson – Look for alternative applications of business innovations

In Ericsson's Connected Mangroves project, they worked with Luimewah, a local technology company, to place sensors in the plant site of the newly-planted mangrove saplings (A mangrove is a shrub or small tree that grows in coastal saline or brackish water). The sensor system provides near real-time information about the mangrove plantation conditions, enabling ICT to play a key role in managing this important resource. The project ensures up to 50% better maturity rates for the mangrove saplings, which in itself assures that the community will increase its mangrove cover substantially in the next few years.

The mangroves are important in rebuilding the ecosystem, as they serve as breeding grounds for crustaceans and fish which attract migratory birds. Malaysia has a diverse array of mangrove species, with 36 out of the 69 species worldwide native to the country. Today, approximately 50% of Malaysian mangroves have been destroyed due to development, aquaculture farms, fire, wood harvesting and pollution. This has caused coastal areas to be unprotected from environmental risks, especially from flooding and tsunamis.

Additionally, a recent study shows 35,594 acres of mangrove habitats can prevent the release into the atmosphere of about 13 million metric tons of carbon, which is equivalent to the carbon emissions of 344,000 cars.

2. IKEA – Enable customers through sustainable design

[4] https://minutehack.com/opinions/how-the-worlds-biggest-businesses-are-fighting-climate-change

IKEA took on the challenge to develop and revise all products to enable customers to save or generate energy, conserve and re-use water, reduce waste and live healthier lives. Their goals include a fourfold increase in the sales of products geared toward more sustainable production and consumption by the end of FY20, compared with FY13.

Already by FY15, these sales had more than doubled compared to FY13, to €1,311 million. IKEA is also focused on climate change with a commitment of €400 million through 2020 to support communities most affected (SDG 13).

Aiming to offset their energy use, IKEA endeavours to produce as much renewable energy as it consumes in its operations by 2020 in addition to becoming 30% more energy efficient in that same timeframe. IKEA has committed to investing €600 million in renewable energy, which includes sizeable investments in wind farms, solar panels and biomass generators.

3. Nike – You can teach an old dog new tricks

Nike has made it a goal to reduce overall negative impact and reach 100% renewable energy by the end of FY25 in owned or operated facilities where energy purchase decisions are made on site. With sustainable growth at the forefront of its business goals, the sportswear giant plans to continue to decrease its total energy use and reduce CO2 emissions, while increasing its clean energy portfolio.

As part of its mission to “accelerate toward a low-carbon growth economy”, Nike presents its sustainability efforts with three core goals: minimize its environmental footprint, transform its manufacturing and “unleash human potential”. Known as a heavy polluter for much of the 1990s, Nike has cleaned up its operations and now boasts some of the highest returns on sustainable investments among North American apparel and footwear companies.

Since 2008, the company’s contract footwear manufacturers have cut energy use per unit by around 50%. That means in the past decade the company used half the energy and generated around half the emissions to make its shoes.

Source: https://minutehack.com/opinions/how-the-worlds-biggest-businesses-are-fighting-climate-change

4. ALGIX – Think outside the box to find a resource in a problem

Harmful algal growth, known as algae blooms, is increasingly prevalent. At the same time, the world’s plastic consumption continues to increase. ALGIX brings algae from pond to production, utilizing algae blooms to produce alternative plastic-free products made from algae, including 3D filaments for 3D printers and plastic foam which has been made into shoes and backpacks.

The company removes algae blooms from ponds and lakes without causing harm or disturbance to fish and plant life. The algae are dried and processed before being combined with plastic resins for filament production. The filament for 3D printing has an algae content of 20%, while the remaining 80% is made from PLA, a nontoxic resin made of lactic acid derived from plant sugars. In 3D printing, using algae-based filament compared to traditional filament requires less energy because of algae filament prints at a lower temperature.

5. Toshiba – Take responsibility of the whole of your product lifecycle

Toshiba aims to reduce environmental impacts throughout product lifecycles through energy efficiency and resource conservation methods, as well as to develop low-carbon technologies that contribute to climate change mitigation. Toshiba's business model and goal is to generate a "virtuous circle" among all business activities while addressing the needs of all stakeholders.

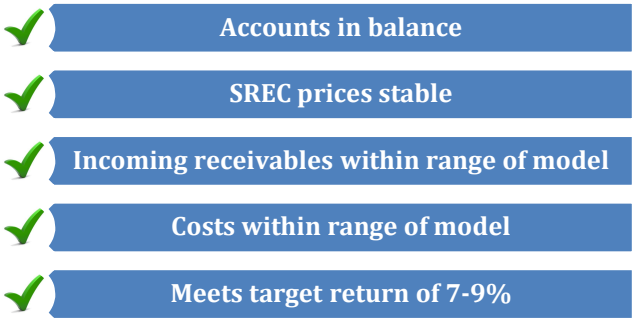
To continue to contribute to society through its technologies and business activities, Toshiba operates as a company that takes responsibility for the entire product lifecycle – from design, packaging and shipping, to considering how electronics and other recyclable products are ultimately retired. Focusing on more than just takeback recycling models, Toshiba has a business plan centred on sustainability to ensure its products, people and policies all work in tandem to minimize the impact on the environment.

III. Ongoing Projects

Wastewater plant, NJ:

The energy created for last quarter remains in line with expectations. The payment for the PPA SREC contract is due during the summer of 2019. The current prices continue to suggest a new PPA should be on the horizon at a reasonable pricing level. Discussions on a new PPA will continue through the summer months.

- Monitor PPA component
- Monitor SREC eligibility and prices on the market (1 SREC for every 1000 kW-hours of electricity produced)
- Monitor regulatory shifts in clean energy incentive programs (RPS) and timelines
- Document any changes to the investment expectations
- Online monitoring of the solar power as well



Sustainable Sewerage, Ontario

The second quarter has seen the purchase of multiple projects from ASI Water[5]. This consists of over 60 projects, both water and wastewater operation and maintenance sites. There are now over 150 sites under operation in the sector. With this large acquisition of projects there begins to be significant scale. There are various types of sites ranging from trailer parks and small developments to golf courses and breweries..

With the amount of projects being run further opportunities may become available. Like before however the lead times can be long due to necessary checks to ensure the upgrades and operational needs are both possible and profitable. The regulatory and environmental compliance in Ontario continues to have an impact on the Province. As time passes the emphasis on these regulations become more important with many of the older systems becoming required to take action with their systems. While regulatory changes take time to implement, it should only be a matter of time before the opportunity set increases.

The UV Pure Generation 3 product has been received well by the market with the roll out underway since last quarter. This launch has been much anticipated and is a significant upgrade from the Generation 2. The company has also ramped up operations by moving to a larger facility[6].

- Maintain monthly communication with Kevin Loiselle and Mark McGuire regarding projects
- Document any changes to the investment expectations

[5] https://www.bloomberg.com/press-releases/2019-05-15/clearford-announces-closing-of-purchase-of-asi-water-advancing-business-plan-to-transition-into-a-water-utility
[6] https://uvpure.com/news/uv-pure-q2-2019-update/

- ✓ Accounts in balance
- ✓ Project updates
- ✓ Incoming receivables within range of model
- ✓ Costs within range of model
- ✓ Meets target return of 7-9%
- ✓ Interest payments made on time

Hydropower, Illinois

Similar to the previous quarter there has been little progress to update from a construction standpoint. The continuous interest in a potential PPA over the past few months looks like it will soon come to fruition. There are now more sold discussions with various off-takers discussing the possibility of a PPA. The process has taken a lot longer than expected but there appears to be optimism that a PPA can be struck in the summer months. A PPA term sheet should be the trigger accelerated positive progress in the coming months.

- Maintain monthly communication with onsite project manager
- Document any changes to the investment expectations
- Monitor the financial reporting, cash flows and accounts

- ✓ Accounts in balance
- ✓ Regulatory requirements kept up to date
- ✓ Costs within range of model
- ✓ Timeline on track

US Water Treatment, California:

The first interest payment was made in May on time. The project currently appears to be on track with the concept and technology gaining interest from some large counterparties for the use of the aggregate product. The team continue to work on the permitting process for the development phase of the project.

- Maintain monthly communication with project team
- Document changes and delays to the permitting process

- ✓ Accounts in balance
- ✓ Permitting process on schedule
- ✓ Timeline on track
- ✓ In line to meet target return of 7-9%

IV. Latest Developments

Latest Actions

There are three main areas where exciting future developments are occurring:

1. Following on from the ASI project purchase there continues to be various portfolios of assets in Canada with potential availability for sale. After the recent transaction the due diligence process starts again. The pipeline remains strong and hopefully from the current size more opportunities will present themselves.

2. There continues to be a lot of momentum in the water space. The article above discusses the need for water solutions in the oil and gas industry. There are also potential project opportunities in the food and beverage market which is one of the largest consumers of water. Regulations on the discharge are becoming more stringent making this an area to explore further.

3. The original Texas project has been removed from the list. Instead another Texas project related to renewable energy and waste solution using Anaerobic Digestion is being looked at. The main outputs from the waste are methane gas and clean water. Hydropower deals remain of interest but are slow moving.

4. There is still the intention on planning a trip to the US in order to visit all plants and potential projects. We foresee the travelling happening in the 4th quarter 2019 as reported last quarter.

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