

SIGNINA CAPITAL AG

**WATER INFRASTRUCTURE
QUARTERLY REPORT – Q2 2022**



Waste Water, Mt. Holly, 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.

Industrial Re-use, Blue Planet, California

The project is a carbon capture and mineralization project based in Pittsburg, CA. The company captures both wastewater and CO₂ emitted from a gas-fired power plant and combines these with locally sourced demolished/returned concrete as a process input material to produce several different "CO₂ 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 is obtained from the local power plant and the ammonia needed from their treatment plant 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.

The company is in its last stage of raising a mix of debt and equity, before reaching commercial viability in 2023. We are involved in the last debt round, but also on the equity side for bespoke advisory clients.

Hydropower, Marseilles, 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.

Hydropower, Braddock, Pennsylvania

A lock and dam hydroelectric water power project located on the Monongahela River, Pittsburgh. The site has obtained a FERC License (No. P-13739) with a 5.25MW capacity and is finalising development. The site, once producing energy will provide power to the local area with income being generated via the sale of the energy.

CURRENT PROJECTS

Q2 has continued to see the emphasis on climate change, ESG and net zero. Obviously the war in the Ukraine and its effect on the world still being the main contributor to volatility and raising energy costs. The energy crisis has taken centre stage, especially in Europe, showing how fragile the current system is. The reliance between countries providing energy has fuelled green energy and technology to the forefront of many country agendas. If the need for infrastructure investment was not already clear and obvious, it is now. The GWI Water Summit provided a lot of insight into the past couple of years as well as a reminder of the vital role water plays at the centre of going greener. Blue Planet sums up the current environment. Carbon sequestering to offset the large emissions from the cement industry. Such technologies are the future to provide solutions and usable products via a negative carbon method.

We are excited to see how the second half of 2022 plays out. When the financial markets are in turmoil it often leads to a blind eye towards climate change and green energy. It does not seem so pronounced this time around. With water slowly becoming a bigger emphasis globally the path forward looks bright but with difficulties to navigate until there is more stability again

Our 2022 ESG report will be released in the coming weeks providing updates on the latest developments from a practical perspective.

REGIONAL MARKET INFORMATION

NEWS IN BRIEF

Biden Administration Launches \$630 Million in Programs to Modernize Nation’s Hydropower Fleet.

<https://www.energy.gov/articles/biden-administration-launches-630-million-programs-modernize-nations-hydropower-fleet>

What Are ESG Bonds?

<https://www.fool.com/investing/stock-market/types-of-stocks/esg-investing/esg-bonds/>

Black & Veatch – 2022 Sustainability Report.

<https://h7g7q8k5.stackpathcdn.com/sites/default/files/2022-07/22GEx21SustainabilityReport.pdf>

HOLCIM NORTH AMERICA TO SCALE UP MINERALIZATION TECHNOLOGY, LEADING INDUSTRY TRANSITION TO NET ZERO¹

Lafarge Canada and Holcim US embark on innovative collaboration with Blue Planet to scale technology that can sequester carbon emissions and provide circular economy benefits.

TORONTO, CAN and CHICAGO, Ill, June 14, 2022 — Holcim North America announced a financial investment in Blue Planet Systems Corporation, to support the development and commercialization of their mineralization technology. Blue Planet’s novel process sequesters carbon emissions into aggregate that can make concrete carbon-negative. Each tonne of Blue Planet’s aggregate can mineralize up to 440 kg of CO₂, preventing it from emitting into the atmosphere.

Blue Planet’s CCUS technology provides circular economy benefits in that the mineralization process can consume industrial waste, such as recycled concrete, cement kiln dust (CKD), and slag and produce new aggregate products. This investment represents another significant step toward making Holcim the global leader in innovative and sustainable building solutions.

“Being at the forefront of driving sustainable actions in our industry requires continuous innovation and partnerships,” said Toufic Tabbara, Region Head, North America.

“Our investment offers a critical opportunity to influence the development of future technologies in the CCUS space while at the same time, we grow our network of like-minded companies with the same strong focus on net zero to amplify global efforts along with other Blue Planet’s investors.”

Holcim North America, comprising Lafarge Canada and Holcim US, and Blue Planet will initiate a multi-year strategic collaboration to help identify potential to use the mineralization technology to further lower the carbon footprint of the companies’ cement, aggregates and concrete operations, with the potential to expand to other operations in the Holcim Group around the world.

“This is an important step for us in North America. Our vision is to transform our St. Constant Plant in Montreal (QC) into a carbon campus that ultimately advances

commercialization of mineralization technologies including Blue Planet’s products,” added David Redfern, president & CEO, Lafarge Canada. “We look forward to advancing our Net Zero strategy by leveraging mineralization technology that allows us to use the CO₂ from our own cement plants to produce carbon neutral or carbon negative sand and gravel products.”



“By focusing on the aggregate component of concrete, our technology can have a more impactful influence on the embodied carbon in concrete than the traditional focus on reducing cement component alone. Collaborating with Holcim enables us to apply our CO₂ mineralization technology to large-scale cement operations where we expect it will more squarely address CO₂ emissions,” commented Brent R. Constantz, Ph.D., CEO at Blue Planet.

CDP HIGHLIGHTS STRANDED ASSET RISK FOR WATER²

A landmark information request sent to financial institutions in May paves the way for full-scale regulation aimed at disclosing the water-related risks behind trillions of dollars of investment activity. With stranded asset risk growing, will Big Finance take the hint?

CDP in May issued its first ever questionnaire to more than 1,200 publicly listed financial institutions in order to gather information on the risks and opportunities they face through exposure to water across their portfolios.

“In the absence of any governmental mandate for financial institutions to undertake water-related due diligence and disclose their water impact in a public manner, CDP has stepped in to fill the void,” explained Cate Lamb, CDP’s global head of water. **“It is ultimately a way in which we can enhance the accountability of those firms to act on water security issues, and we believe that’s a vital first step on the road to ultimately mandating that requirement”**.

While one third of the financial institutions that responded to CDP’s traditional questionnaire in 2020 and 2021 admitted they were not assessing the implications of water insecurity when making investment or loan decisions, that figure is gradually improving.

Lamb concedes that a large proportion of the 1,200 firms may not respond at all in the first year, but warns – not for the first time – that holding back is not a sustainable option.

“There’s no doubt that it adds another layer of complexity, but we’ve demonstrated with our research that a failure to act is much more costly than the cost of actually addressing the issues,” she reiterated.

CDP’s pre-emptive move was not made in a vacuum. In its 2022 budget, the Canadian government specifically stated that it will phase in climate disclosure regulations for financial institutions from 2024, based on the framework developed by the Task Force on Climate-related Financial Disclosures (TCFD). Similarly, India and the EU are well advanced in terms of introducing water disclosure mandates, while the SEC’s climate disclosure announcement in March is a major signal that change is afoot.

“We’ve been working on a landscape assessment of all the mandatory reporting requirements for water across the G20 and Asia-Pacific countries so that we have a baseline of information that tells us exactly where it is mandated currently, where it is being considered and consulted upon by governments, and where it isn’t happening,” Lamb revealed.

In the absence of formal disclosure mandates, some financial institutions will inevitably continue to lend to companies and projects with less than stellar water risk assessments. Quite apart from net new financing, the fact that \$327 billion of existing financial instruments will need to be refinanced over the next five years throws the concept of better water risk assessment into stark relief.

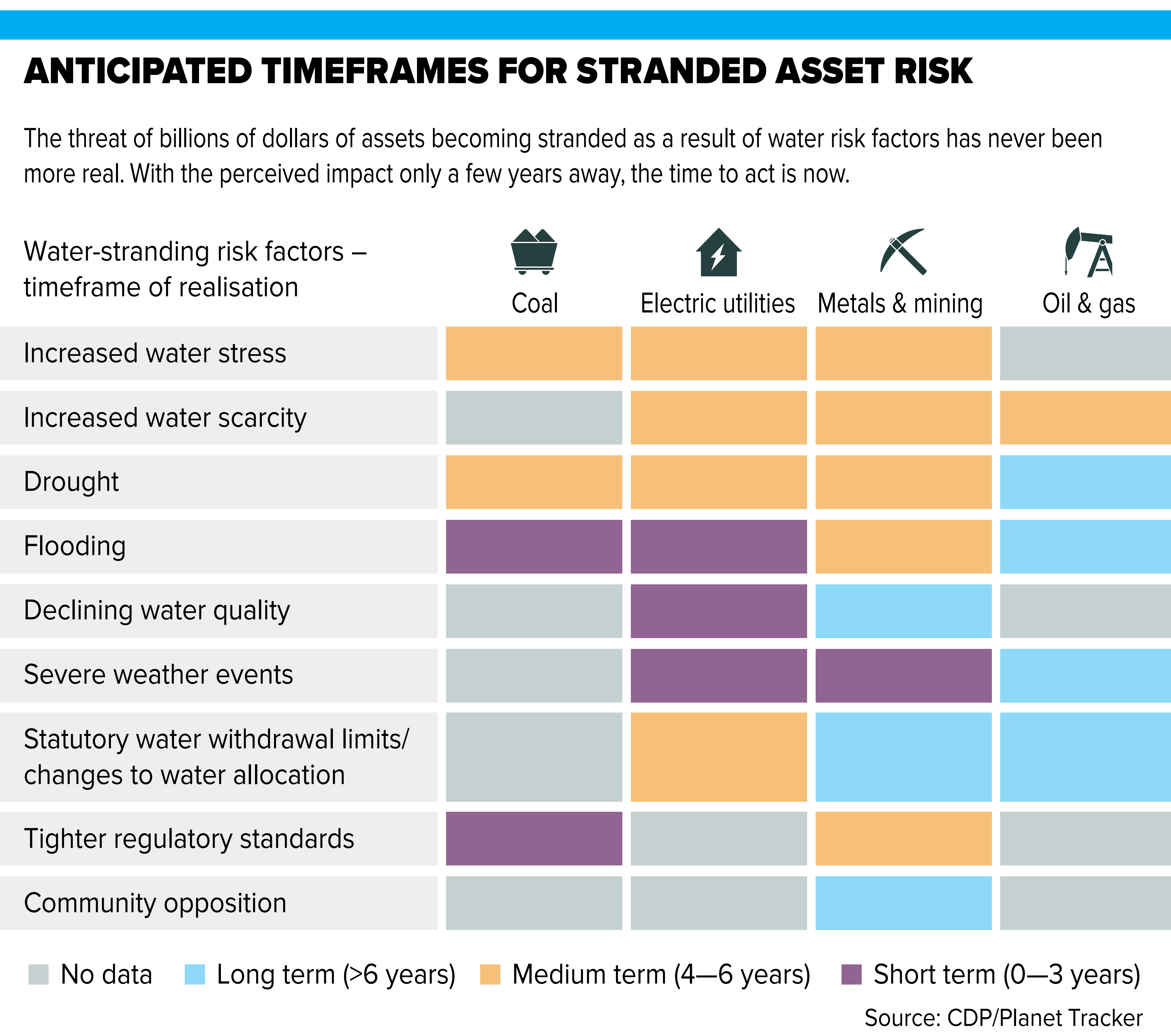
A report published by CDP and Planet Tracker, “High and Dry: How Water Issues Are Stranding Assets³”, raises the very real risk of poor due diligence on water issues resulting in financial losses and stranded assets.

“Most companies still make the fundamental assumption that fresh water resources are always going to be available to them whenever and for however long they need them,” Lamb observed.

“Failing to undertake an assessment at the beginning to understand whether water will be available to you, and to assess the circumstances under which that water may no longer be available in the future, is a misstep that a number of these companies have clearly made.”

Elon Musk’s now infamous dismissal of suggestions last year that the new Tesla plant in Germany might not have enough water turned into sobering delays to the project earlier this year⁴, while the CDP/ Planet Tracker report highlights \$13.5 billion of stranded assets as a direct result of water-related risks.

These straddle four sectors – oil & gas, electric utilities, coal, and metals & mining – and the report stresses the short-term danger of the risk factors feeding through to a potential stranded asset situation. CDP expects to publish an analysis of the results of the financial institutions questionnaire following the July submissions deadline.



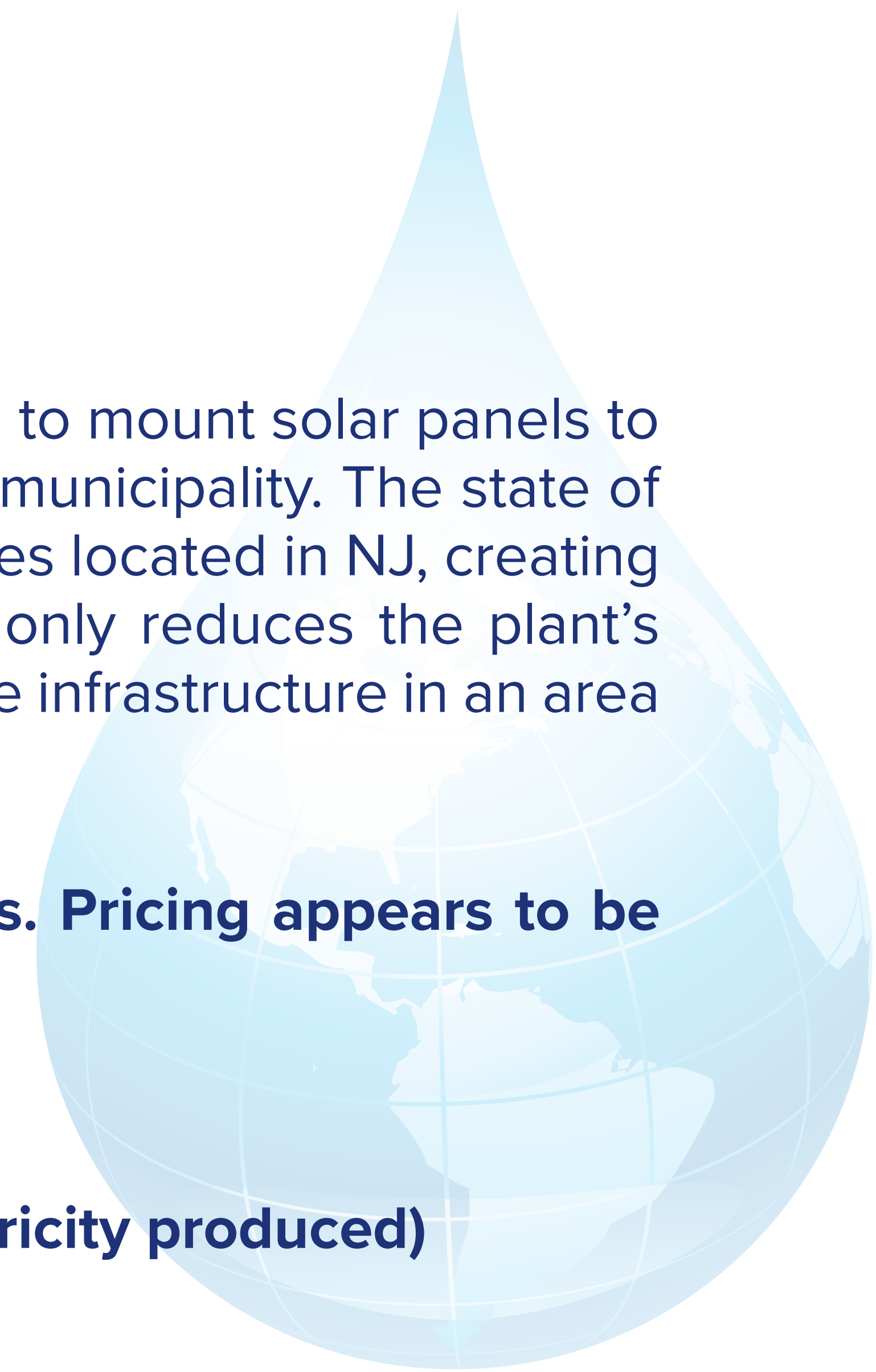


WASTE WATER | MT. HOLLY, NEW JERSEY



A **New Jersey-based Wastewater Treatment Facility (WWTF)** where funds were partially 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. It also helped in 2010 to improve the infrastructure in an area that was hard hit during the financial crises.

The site continues to operate and provide energy with the usual stronger summer months. Pricing appears to be stable.

- Monitor PPA component
- Monitor SREC eligibility and prices on the market (1 SREC for every 1000kW-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



- ✓ Accounts in balance
- ✓ SREC prices stable
- ✓ Incoming receivables within range of model
- ✓ Costs within range of model
- ✓ Meets target return of 7-9%

UN SDG	ICMA CRITERIA	ESG POLICY SOLUTION
 <p>6 CLEAN WATER AND SANITATION</p>	<p>Renewable energy</p> <ul style="list-style-type: none"> • Climate change mitigation • Natural resource conservation • Pollution prevention and control 	<p>Clean energy creation – solar panels provide clean renewable energy</p>
 <p>7 AFFORDABLE AND CLEAN ENERGY</p>	<p>Climate change adaptation</p>	<p>Pollution reduction – the Waste Water Treatment Facility (WWTF) utilizes the solar panels energy via a power purchase agreement. This reduces the heavy amount of energy required by the WWTF which would otherwise be coming from non-renewable sources of energy</p> <p>Energy efficiency – the proximity of the site to the waste water facility offers a high energy efficiency</p>
<p>ESG RISK MITIGATION</p>		<p>• Renewable Energy consumption • Water Consumption</p>



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

SUSTAINABLE SEWERAGE | ONTARIO

The Canadian wastewater market is highly fragmented. The market requires small impact installations, rather than traditional centralised large waste water treatment plants. Our existing 200 projects are government linked and only fully licensed projects with no planning risks are being considered. Signina focuses on business consolidation of mid-sized businesses, operating in project sizes of \$5-50m. The small to mid-range business growth is supported by shifting demographic developments into smaller, satellite communities, as well as a stable favourable regulatory environment.

With wastewater rates rising steadily, the risk-reward associated with Signina's consolidation strategy is readily apparent and has picked up pace since its start in 2008. With larger institutional mandates we have triggered more deals diversifying from the existing projects. The investment model has not changed, but the reach within Ontario has become broader. Sustainable sewerage has become a major concern over the past couple of decades. The Safe Drinking Water Act 2002 (regulates the operation of potable water treatment plants and the pipe network) and the Ontario Clean Water Act 2006 (regulates actions required to protect source water from contamination, through assessment and implementation of measures to protect the water sources). The majority of the contracts are in municipalities that are rated A or higher by rating agencies. In addition there are various municipalities that do not carry any debt.

The operations are as expected. Some of the new potential contracts have come to fruition or making significant progress in the past quarter. There also remains a pipeline of new business and contracts which are being assessed.

UN SDG

6 CLEAN WATER AND SANITATION



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



ICMA CRITERIA

Sustainable water and wastewater management:

- Pollution prevention and control
- Natural resource conservation
- Climate change adaption

Eco-efficient and/or circular economy adapted products, production technologies and processes

- Climate change mitigation
- Natural resource conservation

ESG POLICY SOLUTION

Sustainability - providing finance and assistance in creating and maintaining infrastructure for wastewater treatment and clean water

Pollution prevention - by creating sustainable sewerage infrastructure the need for septic tanks and landfill sites are heavily reduced. The waste water treatment assists an ongoing global problem with handling waste and impurities

ESG RISK MITIGATION

- Water Re-use
- Water Pollution



INDUSTRIAL RE-USE | BLUE PLANET, CALIFORNIA

The project is a **carbon capture and mineralization project based in Pittsburg, CA**. It captures both wastewater and CO₂ 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 “CO₂ 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.

The project and technology company continues operate as expected and has gained momentum from some large industrial firms.

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



UN SDG	ICMA CRITERIA	ESG POLICY SOLUTION
<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<p>Climate change adaptation Green Buildings</p> <ul style="list-style-type: none"> • Climate change mitigation • Natural resource conservation • Pollution prevention and control 	<p>Reuse of wastewater – the water will be obtained from either the local power plant or from the sanitation district. This results in recycling the wastewater</p>
<p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	<p>Eco-efficient and/or circular economy adapted products, production technologies and processes</p> <ul style="list-style-type: none"> • Climate change mitigation • Natural resource conservation 	<p>Recycling products – the process also uses locally sourced demolished concrete as a process input to create aggregate products for use in the Bay Area</p>
<p>13 CLIMATE ACTION</p>		<p>Sustainable buildings – the aggregates created in the process are from renewable and green sources. This in turn does not impact the environment negatively and meets the goal of sustainable cities and communities</p>
<p>ESG RISK MITIGATION • Water Re-use • CO₂ Emissions Neutrality • Pollution</p>		

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



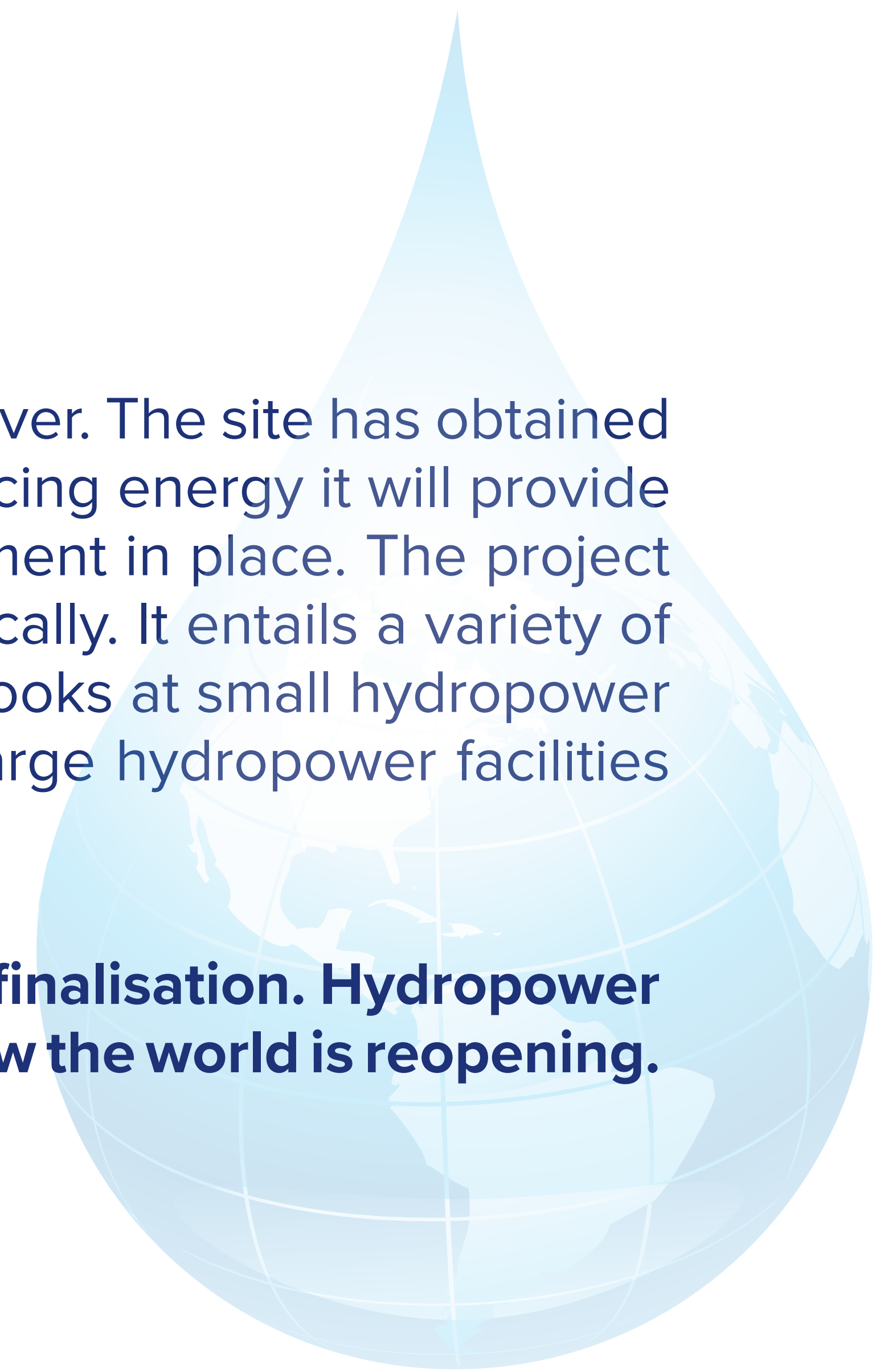
- ✓ Accounts in balance
- ✓ Regulatory requirements kept to date
- ✓ Costs within range of model
- ✓ Timeline on Track

HYDROPOWER | MARSEILLES, ILLINOIS

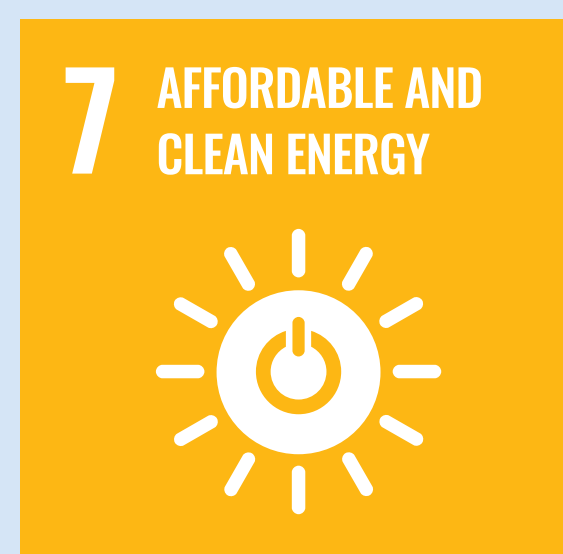
Hydropower, Illinois: A lock and dam hydroelectric water power project located on the Illinois River. The site has obtained a FERC License (expires 2061) with a 10.26MW capacity. Once the site is connected and producing energy it will provide power to the local municipalities and income will be generated by the power purchase agreement in place. The project is considered a small- or mid-sized project and has reduced the environmental impact dramatically. It entails a variety of environmental rules from the EPA that have been fulfilled with the FERC licence. The mandate looks at small hydropower facilities (below 25 MW) as such sites have minimal impacts on the surrounding area unlike large hydropower facilities which often have negative impacts on the surrounding environment.

The project continues to move slowly both on from a construction aspect as well as any PPA finalisation. Hydropower continues to be a hot topic in the clean energy movement and will likely pick up momentum now the world is reopening. There continues to be some volatility in the pricing too which is being monitored closely.

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



UN SDG



ICMA CRITERIA

Renewable energy

- Climate change mitigation
- Natural resource conservation
- Pollution prevention and control

Energy efficiency

- Climate change mitigation
- Pollution prevention and control

Environmentally sustainable management of living natural resources and land use

- Natural resource conservation
- Biodiversity
- Climate change adaptation

ESG POLICY SOLUTION

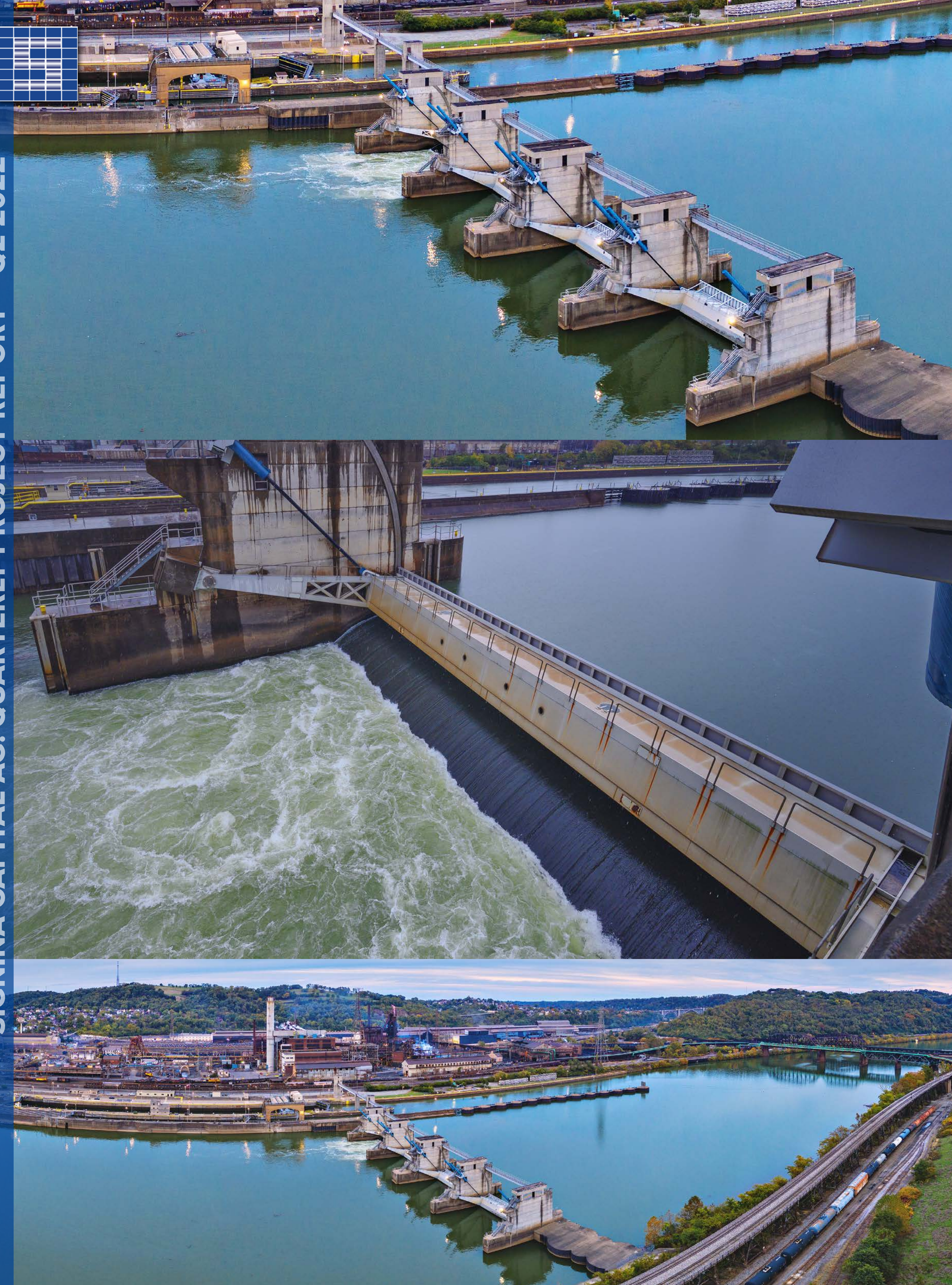
Renewable energy creation - hydropower is a clean renewable source of energy which can be sold via a PPA agreement or via merchant wholesale pricing on hydropower exchanges

Environmental management – the small hydropower market goes through a rigorous environmental approval process to make sure there is minimal impact to the surrounding region

Biodiversity conservation – the environmental approvals for such projects include aquatic preservation to ensure the natural environment is not negatively impacted

ESG RISK MITIGATION

- Project Size under 25mw
- Renewable Energy Production



HYDROPOWER | BRADDOCK, PENNSYLVANIA

Hydropower, Pennsylvania: A Lock and Dam Hydroelectric Water Power Project located on the Monongahela River, Pittsburgh. The site has obtained a FERC license (expires 1965) with a 5.25MW capacity. It is a similar project to Illinois and is in an advanced stage in the PPA negotiations to lock in a price for the first few years post commissioning. Furthermore the project has received state grants.

The project is getting through its final approvals in order to construct the Hydropower plant. Alongside this step there continue to be discussions with some local groups to regarding PPA offtakes for when the site should be operational.

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



UN SDG



ICMA CRITERIA

Renewable energy

- Climate change mitigation
- Natural resource conservation
- Pollution prevention and control

Energy efficiency

- Climate change mitigation
- Pollution prevention and control

Environmentally sustainable management of living natural resources and land use

- Natural resource conservation
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ESG RISK MITIGATION

- Project Size under 25mw
- Renewable Energy Production

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

LATEST DEVELOPMENTS

The main areas from last quarter remain at various stages of progress. Furthermore there are a couple of other highlights:

- 1** GWI Water Summit in Madrid – the team arrived at the three day summit to see what has changed since pre-pandemic. The main theme was “Water-Positive Zero Carbon” which linked nicely to what we have been reiterating the past year. Water, ESG and carbon credits were all hot topics. Technology took a backseat to the items above but the emphasis of new technology to reduce the need for manual checks on site exemplified the positives that has come out of the pandemic.
- 2** The Hydropower opportunity – Similar to last quarter the timeline remains unclear especially with the energy crisis. We continue to see an increase of demand for REPAs (Renewable Energy Purchase contracts) that are quickly representing a good alternative to normal PPAs. The process is ongoing with market factors playing into the assets favour (clean energy and price levels).
- 3** Carbon linked projects – these projects continue to be a hot topic. With the CDP report above it will only increase for water related projects too. The difficulty here is the risk level for many of the projects/technology. Blue Planet continues to progress and are in talks with partners for next steps (Holcim now being an investor and strategic partner).
- 4** Agricultural Greenhouses – This opportunity is making headways across North America. We have sourced some sites with an operational management team and are looking to make strides forward in Q2. The process has not moved as quickly as originally anticipated and so more detail will be provided in Q3. In this quarter the thesis has been validated as some of the large supermarkets have been looking at greenhouse technology.
- 5** We continue to merge some of our existing investments in waste-water Canada into a larger ownership opportunity. The transaction will conclude in Q2 and we have succeeded in bringing in ownership investors to profit from the current market environment. The merger of a large utility company in Canada continues to be a strong provider for growth and we are taking over resources and people from said outlet. As mentioned in the previous report, we have concluded our merging of opportunities and a variety of businesses in Canada. The opportunity presented itself from last quarter onwards, when larger players were merging and had to off-load some of their mid-sized projects. We have taken in a team on the ground and will change both reporting, but also the actual operation on the ground in Canada. We are pleased that after more than 10 years in Canada, we can show a stable path to growth in a difficult and very scattered market.

REFERENCES

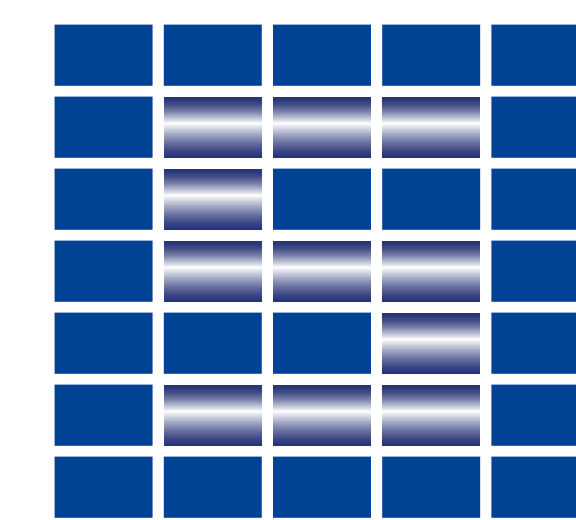
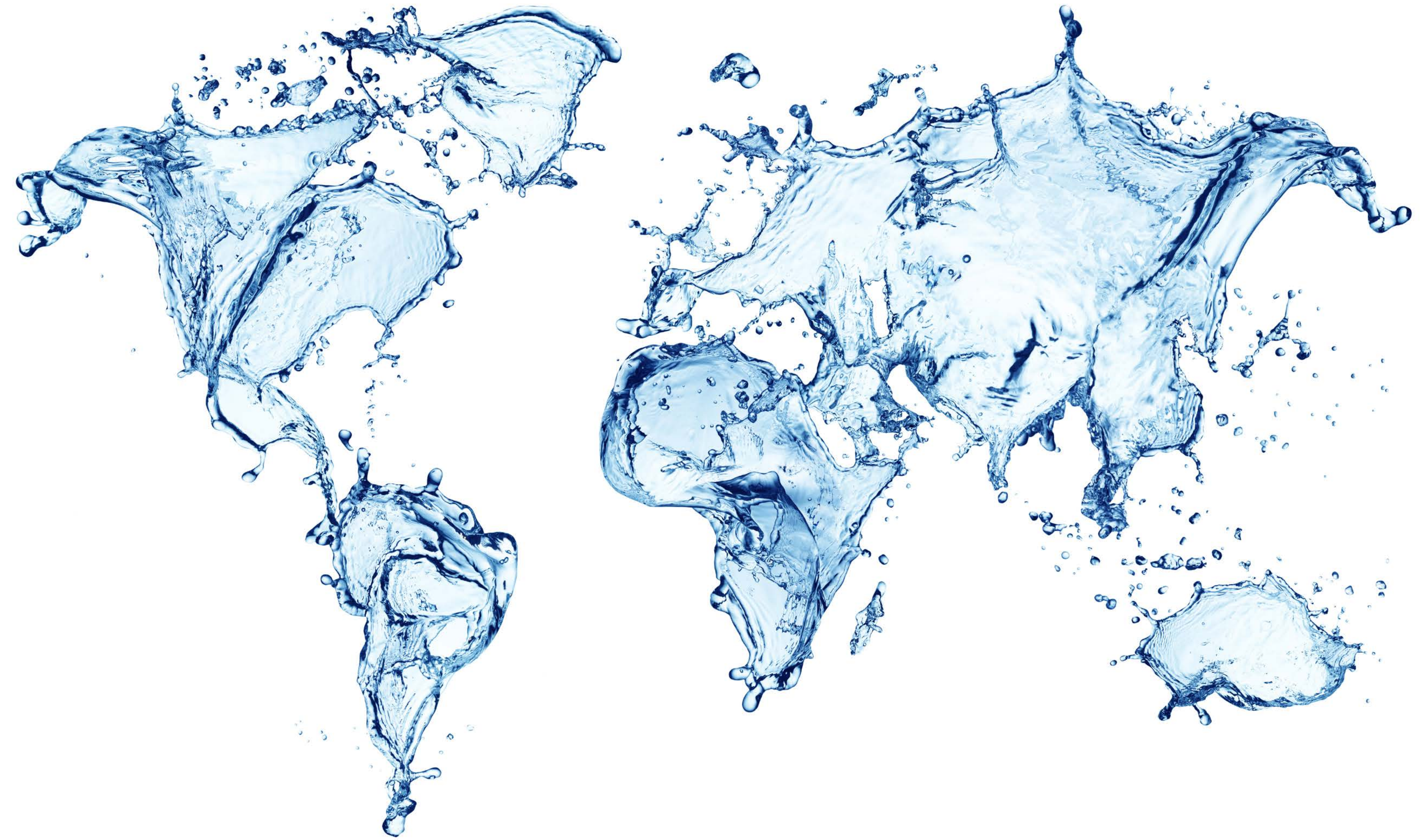
- 1. Holcim North America To Scale Up Mineralization Technology, Leading Industry Transition To Net Zero.**
<https://www.holcim.us/blue-planet>
- 2. CDP Highlights Stranded Asset Risk For Water.**
[GWI Report May 2022](#)
- 3. High And Dry – How Water Issues Are Stranding Assets.**
https://cdn.cdp.net/cdp-production/cms/reports/documents/000/006/321/original/High_and_Dry_Report_Final.pdf?1651652748
- 4. Elon Musk Dismissed Claims That Tesla’s German Gigafactory Will Suck Up Too Much Water, But Experts Say There’s Not Enough To Go Around.**
<https://www.businessinsider.com/elon-musk-tesla-german-factory-overuse-water-droughts-production-delays-2022-2?r=US&IR=T>



SIGNINA CAPITAL AG

Zurich-based Signina Capital AG was established in 2006. Signina is a full spectrum advisory firm in the water infrastructure sector. The team has more than 100 years of combined industry experience. They have placed in excess of USD 1 billion of capital with the private and public sector into environmentally and commercially strategic water infrastructure assets. It is currently overseeing more than USD 750 million of active water infrastructure assets.

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