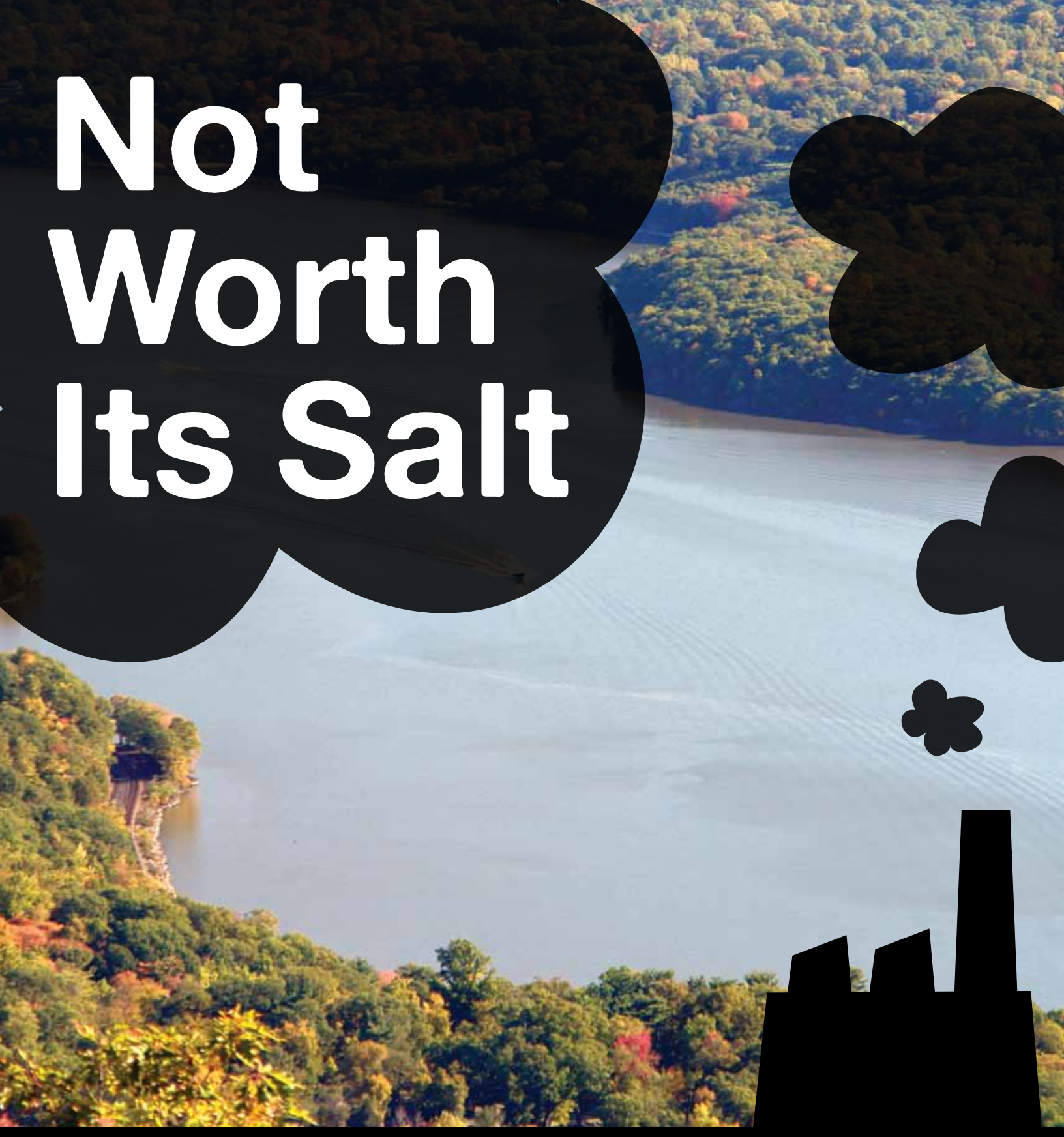
Not Worth Its Salt



How Rockland County Could End Up Paying for an Unnecessary Desalination Plant

food&waterwatch

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Executive Summary

On December 14, 2006, the New York Public Service Commission charged United Water New York, the company that owns Rockland County's water system, with coming up with a new long-term water supply. United Water New York's subsequent proposal to build a desalination plant appears to reflect the kind of decision-making that appears over and over again in communities where private companies that control local water prioritize their financial interests above the public good.

The privately owned water utility, a subsidiary of the French multinational Suez Environnement, has every incentive to build the project. Its profits increase based on a percentage of the capital it spends on new infrastructure, and this desalination plant is no exception. If the proposed facility is built, it will generate a profit stream of approximately $5 million annually.

But while the company profits, the community pays. Water rates will increase to pay for the capital investment, additional profits and increased operating costs associated with the plant. The plant will require large amounts of energy, which will raise costs and contribute to global warming at a time when the entire state is trying to lower its carbon emissions. Because it will draw from the Hudson River, the drinking water the plant produces may contain traces of radioactive chemicals that pose threats to human health. Meanwhile, additional environmental impacts such as water pollution, damage to fisheries and increased flooding could burden the entire water system that spans from New York to New Jersey.

Residents have formed the Rockland Coalition for Sustainable Water to oppose the plant because of the potentially high environmental impacts and economic costs to the community. Desalination is typically a last-resort technology for water-poor areas willing to pay the high financial, social and environmental costs of the technology. Rockland County has plentiful natural water and many low-impact, low-cost water supply options. These include conservation, infrastructure improvements, better land use planning and stormwater management, collection of scientific data, watershed management and other broader tools.

United Water did not seriously consider these options. It only seriously analyzed two expensive infrastructure projects and concluded that desalination was the better of the two. This is not surprising, because the company had no financial incentive to look at the options preferred by community members. None of them require large capital investments that generate profits for the company.

The story unfolding in Rockland County today is happening in many communities around the country. It is relevant not only to local residents, but to any community where the private ownership of water encourages misguided water management decisions. It demonstrates why local control of water matters: because when it comes to our most vital resources, decisions must prioritize community and environmental benefits over the financial interests of a company.

Key Findings

- United Water New York's proposed desalination plant would generate approximately $5 million in annual profits for United Water. The community will pay to cover the capital costs and additional profits for the plant through increased water rates.
- The plant would use two to three times as much electricity as a similarly sized water treatment plant, and only produce three-quarters of the usable water, all the while contributing to carbon emissions. It could also damage sensitive fish habitats, pollute the Hudson River and contribute to flooding.
- The water produced by the desalination may not be safe to drink if the treatment process does not fully remove the PCBs and radioactive chemicals that may be found in the Hudson River water.
- In making its decision, United Water New York did not consider the potential of conservation or other low-cost, low-impact alternatives preferred by community members; these programs do not create the profits that a desalination plant would.
- The company could recover 2 million gallons a day (MGD) of water simply by fixing leaks in its infrastructure — close to the 2.5 MGD the plant would produce in its early phase.
- Rockland County has plentiful natural water resources that have been strained by increased population growth and development. Members of the Rockland Coalition for Sustainable Water believe that Rockland's water needs could be met by taking a watershed approach to water management, which includes conservation, infrastructure improvements, better land-use planning, stormwater management, collection of scientific data and other broader tools.

While United Water's proposed desalination plant would make money for the company, it just does not make sense for the Rockland residents and taxpayers that would pay for it.

Introduction

It appears that Rockland County is experiencing what many communities with privately run water systems face — decisions about their water that prioritize the financial benefit to a company over the best interest of the community it serves.

United Water New York, the private company that owns Rockland County's water utility, is proposing an expensive, unnecessary and polluting desalination plant — against the wishes of many local residents, organizations and public officials. On April 30, 2009, a newly formed citizen organization, the Rockland Coalition for Sustainable Water, organized a community meeting at Clarkstown Town Hall attended by 200 residents.[1] Local community leaders joined environmental organizations and other public interest groups to oppose the plant in their environmentally sensitive Haverstraw Bay and find the best water supply alternative.

The group challenges the company management's claim that the project is Rockland's best solution for meeting future water needs for an expanding population.

On July 11, 2009, the company's letter to the local newspaper declared that its Haverstraw Water Supply Project would be Rockland's best alternative even though, as the company's vice president and general manager describes, the company seems to have seriously compared only two options, a desalination plant and a new reservoir.[2]

An examination of local water resources and the politics at play reveal that the plan is not the best option for Rockland County. It does not adequately weigh the significant social, environmental and economic costs that the community will pay, and fails to consider cheaper, safer alternatives. Yet the company has financial incentive to pursue the project, and no such incentive to consider the alternatives preferred by local residents.

United Water New York's proposal to build a desalination plant on the Hudson River is a shortsighted decision that interferes with sound local water management and adds to the cost of water services — exactly the kind of decision-making that appears over and over again in communities where private companies control local water.

United Water and Suez: Failures in the United States and Abroad

It is not surprising to see United Water New York at odds with the community it serves. The company is a subsidiary of United Water, Inc., which is owned by the French multinational corporation Suez Environnement.[3] (To learn how Rockland County's water system came to be owned by a large French multinational corporation, see pages 13 and 14 for a history and timeline of the various mergers.) United Water and its parent company have a track record of high-profile privatization failures around the country and the world, as communities have ended their contracts with the companies for a variety of reasons.

Several American cities have seen problems with their water systems under United Water's control. Milwaukee decided not to renew its 10-year, $335 million contract with the company in 2007. By that time, the city had issued 20 notices of contract noncompliance and experienced massive sewage overflows and spills.[4] Between 1999 and 2001, 107 million gallons of raw sewage poured into area waterways after the company turned off the pumps to storage tunnels to convert to a different electricity source that would save money on energy.[5] In May 2004, an unprecedented 4.6 billion gallons of raw sewage was dumped into waterways.[6] Perhaps these problems arose because of understaffing and poor system upkeep. By 2003, United Water had cut the workforce from 300 to 209,[7] and an audit found that the company had inadequately maintained non-critical equipment and general facilities.[8]

In 2001, Houston decided not to renew its five-year, $16.3 million contract with United Water for operation of its water treatment plant. The company sued the city for almost a million dollars, claiming that the city still owed them money for services they had offered during their contract.[9] The city countersued the company for $2 million in damages, alleging that United Water had failed to properly maintain equipment.[10] The expensive legal battle took six years and ended with a joint motion to dismiss the appeal.[11]

Perhaps the biggest failure the company experienced was in Atlanta. The 20-year, $428 million contract that United Water signed with Atlanta in 1998 was supposed to be a model for the future.[12] Only four years in, city residents were fed up and city officials ended the contract.[13] A long list of service problems had plagued the city — a backlog of 14,000 work orders, delayed repairs and inadequate responses to emergencies.[14] The city said the company's staffing was inadequate and that it lost millions of dollars because United Water wasn't reading, installing or maintaining water meters frequently enough, nor collecting enough late bills.[15] The company claimed that the city had greatly underestimated the costs of running the system in its original contract.[16] Nevertheless, the city ended the relationship 16 years early.

Across the globe, cities have had problems with their contracts with Suez Environnement, United Water's French parent company, as well. In June 2008, the Paris city council voted to end their hundred year experiment with private water — terminating their long term relationship with Suez, United Water's parent company, and Veolia, another French multinational.[17] They announced that in order to stabilize rates, the water system would revert to 100 percent public control by December 2009.[18] The parent company and its predecessors have seen other failures around the world, including an end to its subsidiary's 30-year contract to run the water system in Buenos Aires, Argentina,[19] and massive citizen protests against Aguas del Illimani, of which Suez was the major shareholder, in El Alto, Bolivia.[20]

Ownership Comes into Play

These sorts of situations are not unique to United Water and Suez. Private companies often have conflicting interests with the communities they serve because they have different priorities from local officials and community members. A publicly owned utility, accountable to local elected officials, has a mandate to provide reasonably priced service that supports the community's goals for environmental protection. In contrast, a private company's first obligation is to its shareholders, not the community it serves, and a company must generate profits to stay in business.

Privatization of water utilities is often associated with failures. Many of the actions that companies take to increase their profits can hurt the quality of the water system and drive up the costs of service. For example, when companies cut jobs to cut expenses, quality of service can suffer. Many communities have had bad experiences with privatization. They have seen rates increase, water quality suffer, customer service decline, profits leave communities, corruption, diminished accountability, expensive financing, lost jobs and little recourse to reverse these deals that give private corporations control over their water.

Multinational corporations are particularly susceptible to profit-driven decision making because they are under pressure to demonstrate increased quarterly earnings. Often, the company's management must show increased profits to be eligible for bonus and salary increases. Therefore, the criteria used in assessing options will be different than those for a public utility. For example, Suez Environnement says it is pursuing a "dynamic rate hike strategy"[21] — a strategy that would be very unusual in the public sector.

United Water and its parent company, Suez Environment, have a track record of high-profile privatization failures around the country and the world.

New Infrastructure: A Source of Profits

What does this have to do with desalination? One of the ways that companies may pursue their own financial interests at the expense of sound water policy is by investing in expensive, but unnecessary, new infrastructure — including desalination plants.

Because of the way rates are regulated, private utilities can increase their earnings by increasing the amount of money they invest in building or repairing infrastructure. Their profit is a percentage on their equity investment.

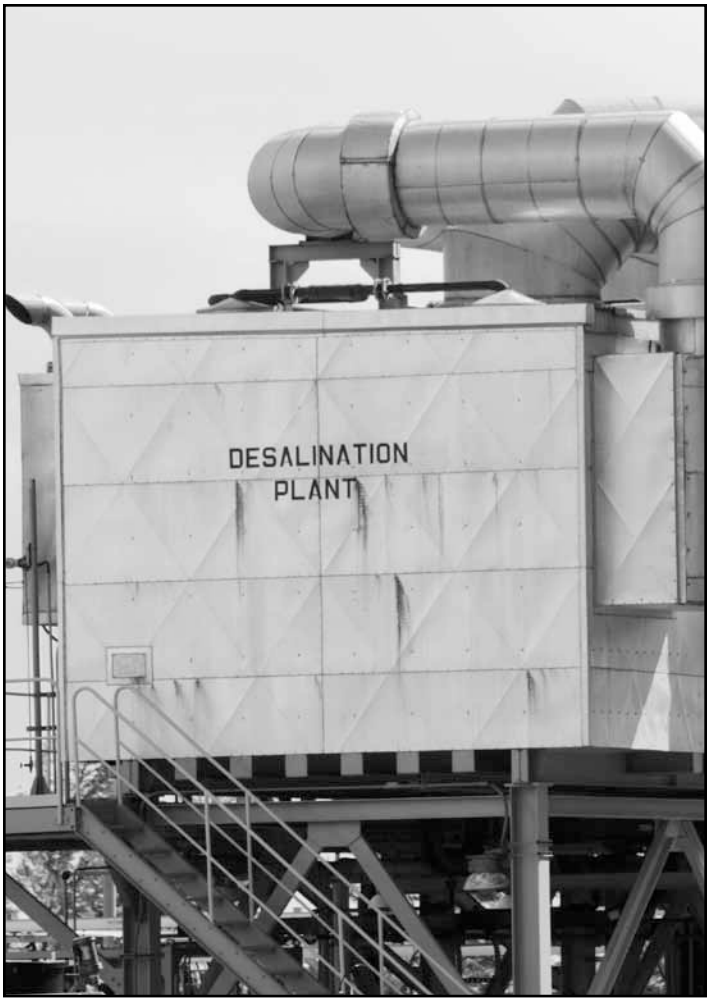
For example, because water utilities are natural monopolies, the New York State Public Service Commission regulates the rates and service of private utilities. During ratemaking, it sets water fees to allow companies to recover their operational expenses, taxes and capital costs.

Capital costs consist of payments on debt and returns on equity. A company's equity is the value of the water system that the company owns; it is the net value of a utility less debt obligations. Companies earn a return on

their equity investment, which is their profit. They say they need to earn a high return on equity in order to access capital markets and attract investors. Typically, regulators authorize a return of around 10 percent.[22]

Because of rate-of-return regulation, private utilities earn more profit when they invest in infrastructure. This creates a financial incentive for over-investment through unnecessary and costly projects. It can mean that soft path decisions like conservation or better water management strategies may not be considered, even though they may be cheaper and safer for local residents.

This means that when asked to find a new water supply, companies have little incentive to promote low-cost, low-impact alternatives such as conservation, but every incentive to build expensive infrastructure such as desalination plants — even though the projects come along with many social and environmental problems. It looks like this is what is happening in Rockland County with United Water's desalination proposal.



A New Water Supply for Rockland County

As part of a 2006 rate increase filing and request to merge with another company, United Water New York, the private company that owns the distribution system that brings water to 90 percent of homes, schools and businesses in Rockland County, committed to finding a new long-term water supply.[23]

According to the laws of New York State, the company must provide "safe and adequate service" to its customers.[24] But it may find this task difficult. In December of 2006, the county hydrologist, Dan Miller, testified in front of the New York Public Service Commission that United Water is not, as phrased in the question to him, "consistently capable of delivering an adequate and reliable supply of water to Rockland County."[25]

United Water's current system in Rockland consists of 1,024 miles of pipes, 14 storage tanks and 13 booster pump stations[26] that supply an average of 31.5 million gallons a day to over 270,000 people.[27] A little less than one-third of the water in the system comes from Lake DeForest, a 5.6 billion gallon reservoir in the Hackensack River watershed.[28] A smaller amount of water is drawn from three reservoirs in the Minisceongo Creek watershed — the Letchworth Reservoirs — and the rest from groundwater sources.[29] Approximately 20 percent comes from 10 wells in the Ramapo Valley Well Field and the Ramapo Aquifer, which connects to the Ramapo River.[30] The remaining water comes from 49 wells located around the county, including bedrock wells in the south and glacial sand and gravel wells throughout the county.[31]

These sources are strained. The population in Rockland County has more than doubled over the past 50 years.[32] A bedroom community to New York City, Rockland County's water demand is predicted to continue increasing along with the population[33] — and its resources are not infinite. One academic review of the county's water shortages revealed that between 1995 and 2002, the county experienced three drought emergencies — with the latest ones described as the worst.[34] According to the analysis, "it is shown that this situation has arisen because continuing development in the county, primarily in the form of private residences, has begun to outstrip the available water supply."[35]

United Water New York filed a request to raise rates on January 30, 2006.[36] In December of that same year, the Public Service Commission granted that permission, but also required that the utility submit its plan for a new long-term supply of water for Rockland County.[37]

The Desalination Proposal

On January 16, 2007, United Water New York publicly announced its decision to build a desalination plant.[38] According to the September 2008 Draft Environmental Impact Statement that it was required to prepare, estimated population growth would demand 15,000 new connections by 2025.[39] United Water predicted that the plant could furnish the necessary 2.5 to 7.5 million gallons of water per day that it said were necessary for future growth.[40]

The company says it chose the desalination plant as the county's best new long-term supply after rejecting additional groundwater supplies, wastewater reuse, increased use of Lake DeForest and use of the Suffern Quarry as possible options, and comparing it with a reservoir.[41] It considered the reservoir to be the only serious alternative, but concluded that it would be more environmentally damaging than the desalination plant and would not fit the project's needs.[42] Michael Pointing, the Vice President of United Water New York, wrote in the local paper, "When weighed against the next best alternative, the choice seems clear that the Haverstraw Water Supply Project is the most reliable, safe and cost-effective solution to Rockland's growing water demands."[43]

Upon examination of the facts, however, many Rockland County citizens concluded that the project was unlikely to be their best long-term water solution. From the company's standpoint, the next best alternative was another large expensive infrastructure project. From the community's standpoint, there are many better options available.

Making Money or Making Sense: United Water V. Rockland Residents

United Water New York's published analysis does not mention how much the corporation stands to gain financially from the project. It will spend $105 million (in 2008 dollars) to reach full build-out, and about half of the capital costs will likely come from investors. Based on our calculations, that investment will generate about $5 million dollars in annual profits. (See Appendix.)

But while the plant will profit the company, it will cost the community. Historically, desalination plants have been reserved for extremely dry areas because the costs, energy requirements and toxic emissions are a serious trade-off for the water they produce — and United Water's Haverstraw Water Supply Project is no exception.

Desalination: The Costs

Money

Desalination is a capital-intensive source of water because it requires heavy industrial machinery and lots of energy. United Water's desalination plant was originally estimated to cost $98 million at full build-out[44] — $105 million in 2008 dollars. The company will recover these costs through a new surcharge called the New Water Supply Source surcharge.[45] Rate increases will include the debt costs and a percentage of profit on the amount of equity invested, which means the increased profit for the company will be coming out of ratepayer pocketbooks.

Further, the cost to operate the desalination project was expected to be $1.91 per 1,000 gallons of water produced in 2008 dollars, which is two and a half times the estimated cost of water from the reservoir alternative.[46] This original estimate is likely to underestimate the future cost of desalinated water. According to the National Research Council, many cost estimates of desalinated water "include subsidies or do not account fully for all costs,"[47] which means that proponents often underestimate the price of desalinated water. This is not surprising given that many plants do not operate at their full capacity and have had trouble getting off the ground. In one survey of plants in Texas, the average production of three of the state's five largest desalination plants that produce drinking water was only about half of the stated design capacity.[48] The one large-scale functioning seawater desalination plant in the United States in Tampa Bay is unable to consistently

produce the 25 million gallons a day (MGD) it was supposed to, and came online years behind schedule and millions of dollars over its predicted cost. [49] A smaller plant under construction in Swansea, Massachusetts, went over its $18 million original budget before its scheduled date to come online.[50]

Energy

In addition, operating costs may be unpredictable because of fluctuations in the price of energy. United Water says its proposed plant will use between 4,427 and 6,520 kilowatt hours of electricity per million gallons of potable water produced (kWh/Mgal).[51] Although water utilities in the United States vary in how much energy they use, most use between 250 and 3,500 kWh/Mgal[52] — much less than the desalination plant.

The nearby Poughkeepsies' Joint Water Treatment Facility uses an average of 2,236 kWh/Mgal to draw in an average of 9.5 MGD of water and produces 9.5 MGD of water — the same amount of water it draws in.[53] In contrast, the desalination plant will draw in 10 MGD and produce only 7.5 MGD of water at full build-out.[54] This means the desalination plant would use two to three times as much electricity as a treatment plant that draws in nearly the same amount of water, but would only produce about three-quarters of the usable water.

Environmental damage

Along with the financial cost of the energy comes a cost to the environment. The state of New York is trying to lower its carbon emissions.[55] The large amount of energy used for the plant runs contrary to this goal because it may be another source of the carbon emissions that contribute to climate change.

The plant comes with many other risks to the environment. Haverstraw Bay, where the plant will be located, is identified as an essential habitat for fish.[56] Already, many species of fish in the Hudson River are declining.[57] The construction of a plant in this sensitive area could impact the region's commercial and recreational fisheries.

Another risk to both marine and human life is the potential impact of the plant's waste products on local waterways. Only a portion of the water that enters a desalination plant comes out drinkable; the rest remains behind with the other byproducts of the process, which must be disposed of somehow. Wastewater from desalination plants contains high concentrations of salt and may contain toxic chemicals and heavy metals from the industrial process.[58] These can include scale inhibitors, acids, coagulants, ferric chloride, chlorines, bisulfites, hydrogen peroxides and other chemicals.[59]

Different plants use different methods to dispose of their wastes. Some plants discharge it into surface waters or send it to sewage treatment plants.[60] All methods for waste disposal come along with risks.[61] Changes to water quality from discharging waste products into local waterways could harm marine life.[62] Sending brine to a local treatment plant can negatively affect the wastewater treatment process and the environment by elevating the salt concentration of the treated effluent.[63] The heavy concentrate can increase wear and tear on the system and increase the cost of treatment.

United Water New York plans to send its reverse osmosis brine concentrate to the Haverstraw Joint Regional Sewage Treatment Plant, which will release it back into the Hudson River along with the rest of its discharge.[64] It is not clear what impact this could have on the sewage treatment plant and the water quality surrounding the point of its release.

Quality of life

Additional potential impacts to residents are more specific to the nature of Rockland County's water system than the technology itself. One analysis shows that the desalination plant could contribute to increased flooding.[65] By adding water to the distribution system from the plant, demand could be reduced from the Lake DeForest reservoir, which could cause it to overflow more frequently.[66] Already, Rockland is facing flooding problems due to increased development.[67] Residents of West Nyack filed a lawsuit against the company in 2008 after it allegedly allowed their homes and businesses to flood.[68]

Source water for the proposed plant risks contamination from the closed Haverstraw Landfill, which is very close to its building site. The water may also expose residents to radioactive chemicals, since the plant will be located across the river from the Indian Point Nuclear Power Plant.

Another unintended consequence of a large new source of water is increased development and its impact on quality of life — traffic, pollution, the expense of new infrastructure — and further strain on the area's water resources. Already, developers are proposing new projects, assuming that there will be sufficient water available because of the plant. For example, the Town of Orangetown wants to build a new development at the site of the former Rockland Psychiatric Center. It already lists the desalination plant as part of the new development's water supply.[69] If this plant encourages more of the type of development that has already strained the county's water, the plant could exacerbate the very problem it is trying to fix.

Public health

After all of this, the water that comes out of the plant may be dangerous to drink. Desalinated water could contain certain contaminants if not fully removed through subsequent treatment processes.[70] In many ocean water plants, boron is a chemical of particular concern because seawater contains higher concentrations of boron than fresh water, and it may not be adequately removed in the reverse osmosis project.[71]

In United Water's project, the water presents human health concerns because the water that it draws from the Hudson River may contain toxic chemicals. The Rockland Coalition for Sustainable Water is concerned that these chemicals could pose health concerns in the desalinated water.[72]

For 30 years up until the 1970s, General Electric spewed polychlorinated biphenyls (PCBs) into the river. These chemicals can harm fish and wildlife, and likely cause cancer and reproductive problems in humans.[73] The U.S. Environmental Protection Agency is now cleaning up through its Superfund program. The New York State Department of Environmental Conservation has issued health advisories recommending to limit the amount of fish consumed from the river[74] — so it is not surprising that local residents are concerned about drinking the water.

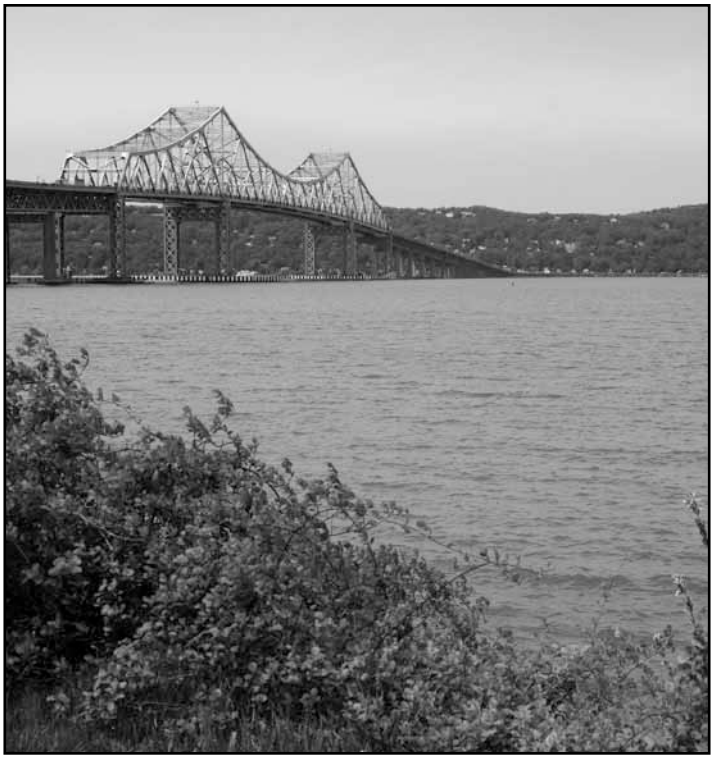
Source water for the plant also risks contamination from the closed Haverstraw Landfill, which is very close to its building site.[75] The landfill may have leaked toxic chemicals into water around the site,[76] which could pose a risk to water sources surrounding the site.

The water may also expose residents to radioactive chemicals. The plant will be located across the river from the Indian Point Nuclear Power Plant. According to Hudson River Sloop Clearwater, a local environmental organization, the groundwater under the plant contains radioactive chemicals including tritium, strontium-09, cesium-137, and iodine-131 — and reverse osmosis may be able to take out most of the strontium, but not the cesium or tritium. [77] If these chemicals get into the Hudson River water that the plant filters, and are not properly treated, they may end up in drinking water.

According to the New York State Department of Environmental Conservation, groundwater from the contaminated site moves into the Hudson River, and radionuclides have been found in the river.[78] In the past, the agency made judgments about the risks the contaminants from the nuclear plant posed based on the assumption that "no drinking water sources are affected because the Hudson River in this area is brackish and is not used as a drinking water source."[79] If the plant were to withdraw water from the Hudson River, this analysis would no longer be correct.

And more

Many of these concerns were raised when the New York State Department of Environmental Conservation solicited input on the plan. The Rockland Coalition for Sustainable Water submitted a 129-page report that raised many of the social, environmental and economic flaws in the plan.[80] After reviewing the comments and making its own assessment, the New York State Department of Environmental Conservation released 29 pages of concerns and additional studies that must be carried out to determine the full extent of the plan's potential impacts. [81]



Coalition members point out in their comments that some of these concerns could have broad-ranging effects.[82] Water does not end at county boundaries, and the water sources that feed Rockland County are connected to water systems in New Jersey and throughout the Hudson River Valley, which spans all the way to New York City.

Rockland County — Rich in Water Resources

The financial, social and environmental costs have deterred many communities in the United States from pursuing desalination. With all these costs considered in Rockland, a plant just does not seem like the obvious choice because Rockland has plentiful natural water resources.

Located in the southern tip of New York, just above New Jersey and New York City, Rockland County, New York, is far from a desert. Estimates of average rainfall in Rockland range from in excess of 40[83] to 50 inches a year.[84] Most of the county is suburban, with wide areas of parklands. In addition to parks, Rockland County enjoys a network of rivers, creeks and lakes. The local tourism department touts the numerous opportunities for enjoying Rockland's many waterways and lakes for swimming, fishing and boating.[85]

The Hudson River borders the county's entire eastern border. Locals know their portion of the river as Haverstraw Bay, or Tappan Zee[86] — coined by Dutch settlers for a Native American tribe populating the area and today the name of the bridge connecting Rockland County to Westchester County.[87] The Hackensack River spans from Lake Deforest to Lake Tappan, which crosses into New Jersey. In the western end of the county, the Ramapo River and the Mahwah River mark the borders of Harriman State Park — a nature preserve with numerous man-made lakes and a favorite Boy Scout camping area. In the east, the county features Rockland Lake,[88] a large body of water that once supported thousands of jobs in the ice industry and today is the centerpiece of a state park.[89]

Not all water in Rockland County is visible. Large unseen underground aquifers connect to the rivers and lakes comprising the area's watershed. Water settles between sand and gravel layers underneath the Ramapo and Mahwah

River Valleys, and in underground rock formations in the western portion of the county.[90]

Unlike many communities that must import their water, Rockland's entire drinking water supply comes from within its own boundaries.[91] So it would be very surprising if an objective analysis found that Rockland County's first choice for obtaining access to new water resources were a desalination plant.

Water Management Options: Better Alternatives

In fact, the residents in the Rockland Coalition for Sustainable Water do not see desalination as their first choice, and many question the need for the plant in the first place. They believe that with all of Rockland County's natural water, the area could use conservation, improvements in existing infrastructure, and better overall water management to alleviate the need for a desalination plant.

Conservation

Conservation and efficiency programs can reduce demand for water, which alleviates the need for a new supply. In fact, many experts in the field of water management contend that conservation is almost always cheaper than desalination — and without the risks. In a debate sponsored by the Rockland Coalition for Sustainable Water, both candidates for county executive stated their support for conservation measures.[92]

According to the National Research Council report on desalination, simply redistributing water can be much cheaper and more efficient than desalination.[93] The proposed Massachusetts Conservation Standards agree: "Finding new water by investing in efficiency and demand management is almost always more cost-effective than developing a new source."[94]

A researcher at Columbia University's Lamont-Doherty Earth Observatory calculated that Rockland County could reduce its per-capita demand by 15 percent[95] — similar to how much Cary, North Carolina, successfully saved with its conservation programs between 1996 and 2007.[96] New York City also serves as a model the county could use. Between 1979 and 2006, water use declined by 28 percent even though the population grew by 15 percent. The decline was due to efficiency measures such as low-flow toilets and leak repairs.[97]

The county could benefit from a full analysis of potential conservation measures that could be taken to avoid the

plant. An analysis in Marin County, California, another community thinking about building a desalination plant, found that conservation programs could provide more water than the proposed desalination plant at a fraction of the cost. The former head of Marin Municipal Water District's water conservation program came up with a package of proposed alternatives, which included reducing landscape irrigation waste and excessive water use, reducing distribution system leaks, providing improvements in reservoir operation, increasing efficient toilet and urinal retrofits, increasing efficient clothes washer retrofits and increasing water recycling.[98] Most of these conservation programs would cost $500 per acre-foot or less, while desalted seawater in Marin would cost between $2,900 and $4,400 per acre-foot.[99]

Improve infrastructure

United Water said it could not rely on conservation programs as a major source of new water because it could not enforce limits on customers' water use.[100] But it could do a lot to save water through improving its own infrastructure. In 2007 the company lost 4.17 MGD in leaks from its system.[101] The company says that 2.13 MGD of this is "unavoidable."[102] Even so, that leaves 2 MGD of water that could be recovered simply by fixing leaks in current infrastructure — almost as much as the 2.5 MGD that the desalination plant would produce in the first phase of its operation.

Further, the company could better monitor the water in its reservoir so that water does not go to waste. United Water has a permit that requires it to release 9.75 MGD from its Lake DeForest reservoir into the Hackensack River to replenish New Jersey's downstream water supply; the company was fined $10,000 by the NYSDEC for releasing 231 million gallons of water more than its permit allows between June 1, 2007 and September 22, 2007.[103] It said a defective valve was the reason for its trouble.[104] If the company fixed its leaks and improved its monitoring system, it could better provide water for the county and may not need to build a new plant.

Watershed approach

Improving the water supply is not just about using less water, but also about taking a more comprehensive approach to water management. The United States Environmental Protection Agency says the "most effective framework to address today's water resource challenges" is a watershed approach — a community-based framework that incorporates public and private stakeholders, sound science and broad strategies that recognize hydrologic principles and how watersheds connect across political boundaries.[105]

A watershed approach is based on scientific data and takes into account the interconnection between different water sources. In order to make good decisions about its water future, Rockland County must have an accurate picture of its existing ground and surface water resources. That is why the county, along with the state Department of Environmental Conservation and United Water New York, commissioned a study by the United States Geological Survey to analyze the county's water resources.[106] Yet United Water proposed its plant far before the scientific evaluation was expected to be finished. Although plans for the plant were announced in January, 2007, coalition members expected the results of the study in December of 2009.[107]

Rockland County must also take into account how its watersheds and river basins connect to New Jersey's water supply. United Water New York's Lake DeForest Reservoir in Rockland releases water into the Hackensack River. The Hackensack River connects to the waterways that feed the Lake Tappan, Woodcliff Lake and Oradell Reservoirs in New Jersey.

The amount of water in the New Jersey reservoirs can affect how much water is available in Rockland's Lake DeForest Reservoir. When the capacity of the three reservoirs that serve New Jersey drops to 50 percent, United Water New York can release more water from the Lake DeForest Reservoir than the 9.75 million gallons a day specified by its permit.[108]

From June 2007 to November 2007, the Oradell Reservoir in New Jersey discharged 7.31 million gallons per day more than the historical daily median flow into the Atlantic Ocean.[109] This is nearly as much water as the 7.5 MGD the desalination plant would bring at full build-out.

Stormwater management and land-use planning

Sound water management must not only satisfy increased demand, but also address the root causes of water shortages. Rockland County's water system is strained not simply because the population is growing, but also because of the way the population is growing. Increased development can harm the water supply because it changes the natural landscape. When rain hits hard pavement instead of dirt, it cannot filter naturally into the ground and recharge groundwater sources. Instead, it is diverted into storm drains and, from there, discharged into surface waters. This removes water from the local groundwater system, and can also lead to overflows if increased stormwater quantities overload the pipes. The United States Geological Survey asserts that groundwater recharge in Rockland County has decreased due to both diverting water through storm water drainage systems and increased pavement and other impervious surfaces from suburban developments.[110]

Many members of the Rockland Coalition cited the need to consider the effects of development on future water planning, and suggested that Rockland County should consider state and federal best practices in stormwater management before building a desalination plant.[111] Both the New York State Department of Environmental Conservation and the United States Environmental Protection Agency emphasize the idea that land use planning should be incorporated into stormwater programs.[112] Site design elements can use natural green spaces, permeable pavements and many other techniques to help recharge groundwater and reduce runoff. These types of programs are often referred to as green infrastructure, smart growth principles, or Low-Impact Development. Many cities in the United States including Seattle, Washington, and Portland, Oregon, have found that such strategies can improve their environment and save money at the same time.[113] Rockland County could improve its water sources by using such techniques and rethinking its approach to development to better protect the region's future water supplies.

The Company Is Not Likely to Pursue These Measures

The types of programs that the Rockland Coalition for Sustainable Water members prefer are exactly the type of programs that private companies are unlikely to pursue when given the task of finding a new source of water.

Conservation programs do not require the large infrastructure investments that bring profits for a company. They may also reduce revenues, because typically, the less water customers use, the less they pay. A company also has little incentive to improve its existing infrastructure compared with the incentive it has to build new infrastructure. Money for maintaining infrastructure comes out of the operations budget, which is recorded as an expense. The money that goes into new infrastructure is regarded as an investment, which inflates a company's profits.

Although United Water mentions some steps it is taking to encourage conservation, it specifically says that it cannot rely on conservation because it is a private company and therefore does not have the authority to enforce such measures.[114] This brings up another obstacle for sound water management in the hands of private companies: It is typically the role of the government, not the private sector, to create and enforce public policies that allow for the wise use of a shared resource.

In fact, the type of behavior necessary to implement a watershed approach to water management is generally characteristic of the public sector, not the private one. Private companies typically compete with one another for profits, rather than negotiating with multiple stakeholders and forming multiagency partnerships for mutual benefit. Scientific data collection takes time and money, which private companies may prefer to allocate to more profitable activities. Decisions about land use and zoning that could encourage green development practices are typically not under the jurisdiction of a private company, but would require working with government agencies, local residents and businesses. The many factors that must be considered to implement a watershed approach are more complicated for a company to undertake than to simply build a desalination plant, and this more comprehensive approach does not necessarily come with a clear financial payoff.

Conclusion

While United Water's proposed desalination plant would make money for the company, it just does not make sense for the Rockland residents and taxpayers that would pay for it. The company's analysis of Rockland County's water options did not sufficiently weigh the costs to the community or analyze cheaper, safer alternatives. It did not wait for scientific data before making its decision. It had no financial incentive to do so — while it did have financial incentive to pursue an expensive infrastructure project and choose a desalination plant.

This story in Rockland County shows how privatization encourages misguided water management decisions all around the country. When entities that own water systems have financial incentives to make certain decisions, they may weigh those more heavily than the safety of the community or the preferences of local ratepayers. Private companies may lack interest and experience in applying a watershed approach to water management, and may not have the authority of the public sector to pursue policies that protect a shared resource. This is why it is important for local officials and residents to participate in decisions made about water resources — because such decisions should be based on which choice will create a safe long-term water supply, not on which will create the biggest boost in a company's annual returns.

Appendix

The Haverstraw Water Supply Project

Capital Investment. United Water New York estimated that the total cost of the entire three phases of the Hudson River desalination plant would be $98 million in 2006 dollars.[115] That is $105 million in 2008 dollars.[116]

Capital Structure. This analysis assumes that the utility finances the project using a capital structure similar to its capital structure in 2008, with a 48.00 percent equity cap and the rest debt (see table 1, line a).[117]

Return on Equity. This analysis assumes that the cost of equity is 10.25 percent, which is the cost of equity that the utility used in its long-term strategic planning process (see table 1, line b).[118]

Based on these figures, the completed project would increase the utility's profits, called its total return on equity, by $5.17 million a year (see table 1, line e). United Water would recover this amount by charging higher water rates.

Capital investment and profits

Regulated investor-owned water utilities profit by investing in infrastructure. Their return on equity is directly proportional to the value of their equity investment.

United Water New York relies on its own capital or stock offerings to pay for about 48 percent of the costs of a typical capital project. It earns an annual return of 10.25 percent on that equity investment. So, its annual return on equity is about 4.92 percent of the total project's value. Over time, as the value of the assets depreciates, it will need to invest in new projects to maintain or increase its returns.

Water users must pay for the profit through their water bills.

Table 1. Cost of Capital Calculation

(a) Equity investment (as portion of total investment)	48.00%
(b) Return on equity	*10.25%*
(c) Weighted cost of equity (lines a X b)	4.92%
(d) Total project costs	$105 million
(e) Total annual return on equity (lines c X d)	$5.17 million

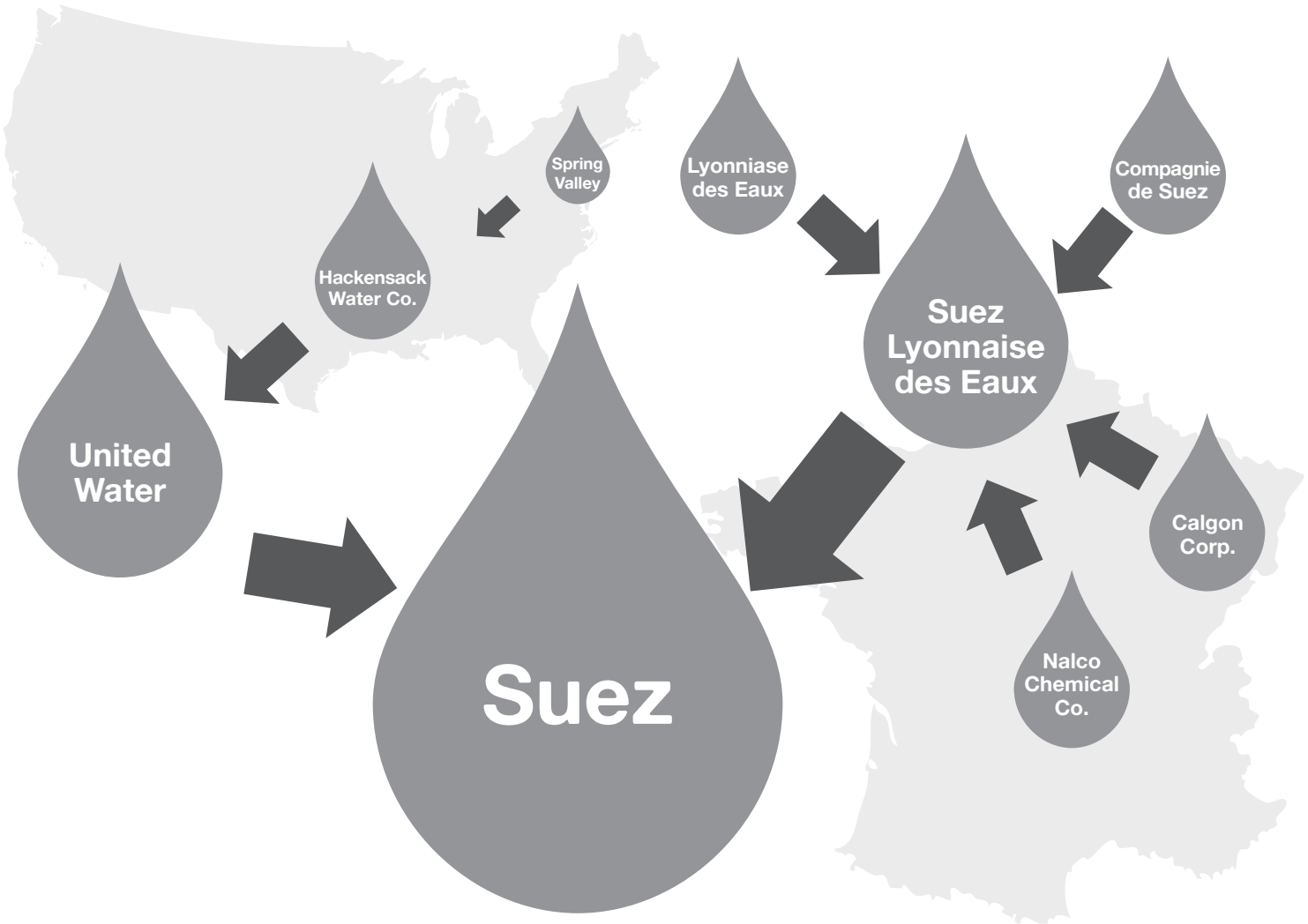
Rockland County's water: A history of mergers

How did Rockland County's water come to be owned by a French multinational corporation?

After the civil war, most farms obtained water from cisterns and wells, but with Rockland County's proximity to New York City, the demand for a water system grew. In 1893, the Spring Valley Water Works and Supply Company was incorporated in New York to provide water for the growing county.[119] The small system, with 91 customers, was acquired in 1900 by the New Jersey-based, Hackensack Water Company.[120] Over the years, the company expanded, changed hands and acquired many water systems throughout New York and New Jersey, as well as real estate holdings and other non-utility assets.[121]

By 1983, the once-small local enterprise had grown into a major corporation. In order to more easily manage its non-utility assets, the Hackensack Water Company reorganized under the name United Water Resources, Inc.[122] United Water purchased the General Waterworks Corporation for $200 million in 1994.[123] As part of the deal, the principal owner of GWC stock, French water giant Lyonnaise des Eaux-Dumez, received a 26 percent stake in United Water.[124] The new entity became the second largest investor-owned water utility in the United States, serving customers in 14 states.[125]

The merger frenzy continued with French companies Lyonnaise des Eaux and Compagnie de Suez, developer of the Suez Canal, merging in 1997.[126] Suez Lyonnaise des Eaux soon bought Calgon Corporation, a water-treatment company, for $425 million, and Nalco Chemical Company, a water-treatment chemicals firm, for $4.1 billion.[127] Then, Suez began negotiating to purchase the remaining shares of United Water stock for a total price of $1.36 billion and an assumption of approximately $800 million in debt and other obligations.[128] Regulators in New Jersey and New York approved Suez's $1.02 billion acquisition of United Water in 2000, and United Water became a subsidiary of the French multinational giant.[129]



Pilot plant moves forward; local towns voice opposition

On Nov 5, 2009, United Water gained permission to move forward with preliminary steps towards its desalination project when the New York State Department of Environmental Conservation approved United Water's application for a permit to construct a pilot plant on the Hudson River.[130] The project's 735 feet of six-foot-diameter piping will draw in Hudson River water and carry it to a treatment center.[131] The company would use the water over the next 12 to 18 months to test its water treatment methods.[132]

The permit allowing the pilot project was the last regulatory obstacle remaining to prevent the company from moving forward with its testing.[133] In order to build the full-fledged desalination plant, the company would still need a final building permit from the town of Haverstraw.[134]

While the company worked for continuing approval, Rockland residents stated their opposition. The town of Stony Point passed a resolution on November 10, 2009, requesting that no authorities move forward with approving the facility until the water can be proven safe.[135] The Town Board of the Town of Ramapo went further and declared itself "opposed to construction of the 'Haverstraw Water Supply Project' and any Hudson River desalinization facility at this time."[136] Members of the Rockland Coalition for Sustainable Water hope to see similar resolutions from Clarkstown, Orangetown and other towns in the area.

Timeline

1869: Hackensack Water Company founded in New Jersey[137]

1893: Spring Valley Water Works and Supply Company organized to supply water to the village of Spring Valley in Rockland County[138]

1900: Hackensack Water Company acquired Spring Valley Water Works and Supply Company[139]

1983: Hackensack Water Company reorganized as United Water Resources Inc., to better manage non-utility assets[140]

1994: United Water merged with General Waterworks Corporation[141]

2000: United Water bought by French multinational Suez Environnement[142]

December 2006: County hydrologist testifies that United Water's current system is not consistently capable of delivering an adequate supply of water to Rockland County; New York Public Service Commission approves rate increase and charges United Water with coming up with a new long term water supply[143]

January 2007: United Water announced proposal to build desalination plant on the Hudson River as Rockland County's new long-term water supply[144]

September 2008: United Water released Draft Environmental Impact Statement detailing its plans for the plant[145]

April 2009: Rockland Coalition for Sustainable Water holds meeting at Clarkstown Town Hall, attracting approximately 200 people[146]

June 2009: New York State Department of Environmental Conservation issues final scoping document that details additional studies that must be carried out to evaluate the potential impacts of the plant[147]

October 2009: County executive candidates express support for conservation measures at debate sponsored by Rockland Coalition for Sustainable Water[148]

November 2009: New York State Department of Environmental Conservation approves permit to build pilot plant; Town of Stony Point adopts resolution asking governments not to move forward unless safety is proven; Town of Ramapo issues resolution opposing the plant.[149]

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