

**INTEGRATED RESOURCE PLANNING
ADVISORY COMMITTEE MEETING SUMMARY**

October 3, 2012, 4:00 p.m.

Colorado River Conference Rooms, Southern Nevada Water Authority
100 City Parkway, Seventh Floor, Las Vegas, Nevada

Members Present	Tom Burns	Otto Merida
	Kirk Clausen	Bobbi Miracle
	Thalia Dondero	Phil Ralston
	Bob Ferraro	John Restrepo
	Mike Forman	Scot Rutledge
	Garry Goett	David Scherer
	Warren Hardy	D. Taylor
	Katherine Jacobi	Danny Thompson
	Carol Jefferies	Virginia Valentine
Members Absent	Joyce Haldeman	Jennifer Lewis
	Bob Kasner	
Staff Present:	John Entsminger	Julie Wilcox
	Kay Brothers	Andy Belanger
	Marc Jensen	Katie Horn

PUBLIC COMMENT

Ed Uehling, Las Vegas, stated that the September 12 meeting summary did not accurately reflect his comments. He requested that the meeting summary be revised.

SUMMARY OF ACTIVITIES

The Southern Nevada Water Authority's (SNWA's) Integrated Resource Planning Advisory Committee (IRPAC) met on Wednesday, October 3, 2012. The meeting began at approximately 4:07 p.m. A list of attendees is provided in Attachment A.

Approve the September 12, 2012 meeting summary: Dave Ebersold advised the committee that recordings of the IRPAC meetings are available should the committee need more detail. The recordings are also available to the public.

The committee approved the meeting summary with a revision to the public comment by Ed Uehling, who said the recently approved infrastructure surcharge was part of a political process which targeted the weakest economic group of the Las Vegas economy; IRPAC's newly adopted mission statement is designed to be meaningless and adaptable to any conclusion; and SNWA employee salaries are mathematically unsustainable.

Continue presentation on the history of water use in Southern Nevada: John Entsminger, Senior Deputy General Manager, SNWA, began by making a statement in response to several inquiries he received from committee members about remarks made in the press concerning the infrastructure surcharge. Mr. Entsminger advised that the existing infrastructure surcharge, including the credit on the fire-line charges, will remain in place until the IRPAC committee makes its recommendations to the SNWA Board of Directors. There is no plan to make any interim changes.

Next, Mr. Entsminger recapped the September 12 meeting as follows:

- Planners assumed Nevada's Colorado River allocation would last indefinitely;
- Southern Nevada's population estimates ran low; growth was underestimated;
- The SNWA was formed in 1991 to address water resource issues regionally;
- The SNWA convened its first integrated planning committee in the mid-1990s to address a number of issues for the community, namely facility needs.

Kay Brothers, SNWA's former Deputy General Manager, was introduced to discuss key recommendations made by the first IRPAC committee relative to facilities.

Ms. Brothers explained that in 1995 the Colorado River Commission transferred authority to the SNWA to construct and operate facilities. To accomplish this, a Facilities and Operations Agreement was entered into among SNWA member agencies that required the SNWA to develop a Capital Improvement Plan (CIP), an Operating Plan and established fees to fund the new facilities, based on capacity and reliability needs. Under the agreement, the purveyor members (Las Vegas Valley Water District (LVVWD), City of Henderson and City of North Las Vegas) were obligated to fund the improvements and operations of the Southern Nevada Water System. At the time, Boulder City felt its allocation was sufficient and elected not to pay into costs associated with new facilities or future resources. As a result, Boulder City pays the wholesale delivery charge only.

The Las Vegas Valley was growing tremendously and additional capacity was needed as quickly as possible. The CIP provided for the construction of 900 million gallons per day (MGD) of capacity. It contained \$2.1 billion dollars of public works projects, which included pipelines, treatment facilities and pumping stations.

The IRPAC recommended that a new treatment and transmission facility, large enough to be reliable and provide backup in the event of a catastrophic event, be built immediately. In response, the River Mountains Water Treatment Facility was constructed and came online in 2002. It provided an additional 150 MGD of regional treatment capacity. By 2006, the regional capacity reached 900 MGD.

The IRPAC also recommended that the Southern Nevada Water System be expanded to capacity as soon as possible. In 1999, the capacity of the Alfred Merritt Smith Water Treatment Facility (AMS) was increased from 400 MGD to 600 MGD.

Finally, the IRPAC recommended that the SNWA implement a phased and expandable water facilities program. In 1995, the SNWA Board approved a phased Capital Improvements Program to build "just in time" facilities. This program was retired in 2010 following the completion of \$2 billion in projects.

Phil Ralston asked Ms. Brothers to distinguish between the second and third IRPAC recommendations on the slide. Ms. Brothers responded that the second recommendation had to do with water treatment facilities and the third recommendation was to expand overall infrastructure to bring more water into the valley.

Ms. Brothers continued describing facility expansion:

- 1995 - Alfred Merritt Smith Treatment Plant (AMS) inherited from the Colorado River Commission.
- 1997 - AMS expanded from 400 MGD to 600 MGD; West Lateral Transmission lines were upgraded; and a new pumping station was added.

Mr. Ralston asked for clarification between the upgraded 1997 transmission lines and the lines that were previously in place from the 1995 system. Ms. Brothers explained that the upgraded lines added capacity.

- 1999 - New South Valley Lateral, two pumping stations, and two reservoirs were added. The South Valley Lateral served Southern Highlands, Seven Hills, Anthem and Green Valley (all of south Henderson). As a side note, Ms. Brothers explained that the SNWA anticipated this new lateral would be sufficient until 2012 or 2014. However, in 2005, the SNWA started planning for an additional lateral because the capacity of the South Valley Lateral was approaching its limits. The second lateral never materialized, however, due the economic downturn.
- 2000 - East Valley Lateral, two pumping stations and one new reservoir were added.
- 2002 - River Mountains Treatment Facility (150 MGD capacity) came online with ozone; Lake Mead Intake No. 2, North Valley Lateral, Power Investments, numerous pumping stations, rate-of-flow stations, reservoirs were constructed; ozone was added to Alfred Merritt Smith Treatment Plant.
- 2006 - River Mountains Treatment Facility capacity expanded from 150 MGD to 300 MGD.

Scot Rutledge asked what the new reservoir was in 2000. Marc Jensen, SNWA, stated that it was Horizon Ridge Reservoir.

Ms. Brothers explained that tremendous growth required additional capacity. The plan for the “just in time” facilities was that they would be built when needed, but they were needed much sooner than anticipated. Water systems are built for maximum day water demand—the maximum water needed on the hottest day of the year. The Southern Nevada Water System had to be online with enough capacity to meet those peak demands.

Kirk Clausen inquired as to the life-expectancy of a lateral and if any lines are approaching the need for replacement. Ms. Brothers responded the life is approximately 50 years and there are no lines nearing the 50-year span. Mr. Clausen then asked if there is a replacement fund for the infrastructure. Ms. Brothers explained that the SNWA uses asset management principles to maintain the facilities.

Phil Ralston questioned whether the SNWA has any reserve earmarked for the 50-year mark. Ms. Brothers explained it is being factored into some of the budgets and planned for through asset management. Mr. Ralston restated his understanding of the answer—infrastructure maintenance is budgeted for on an annual as-needed basis.

Gary Goett asked why we didn't go to the bottom of Lake Mead when Intake No. 2 was built. Ms. Brothers responded that in the history of Lake Mead, we always had high lake levels. The SNWA never pumped water from less than 1,100 feet until this particular drought. It was never anticipated that we would need go below 1,000 feet.

David Scherer noted that there is some interesting technology being used on the aging infrastructure on the East Coast that could be evaluated to mitigate costs, including the ability to generate power from the flow of water. He then asked if there would be a discussion on the metrics used to forecast demand. Mr. Entsminger responded that factoring population growth and demand into resource efforts will be discussed later in this presentation.

Mr. Ebersold added that, in the months down the road, the committee would also discuss resources and future facilities and what numbers should be used and what ranges should be used.

Warren Hardy stated that he wants to understand the process in place for how replacement costs are budgeted. Ms. Brothers stated that the committee can talk about the SNWA maintenance programs on a regional basis. Mr. Entsminger said the SNWA can show presentations on the asset management program, if the committee wants to get into that in more depth.

Mr. Entsminger continued the presentation with IRPAC's recommendations for water resources. IRPAC recommended that the SNWA seek permanent, long-term water supplies and develop a water resource plan to meet future water demands. In 1996, the SNWA developed its first Water Resource Plan, which is reviewed every year. It is either reapproved or a new plan is developed so as to always maintain the 50-year planning horizon.

The committee also recommended that top priority be placed on Colorado River resources. In response, the SNWA began purchasing water rights on Muddy and Virgin rivers in 1997. In 2001, the Bureau of Reclamation's Interim Surplus Guidelines were finalized, which gave the SNWA access to additional Colorado River supplies when available. In 2004, the SNWA and CRC entered to an agreement to bank up to 1.25 million acre feet (MAF) in Arizona.

Bob Ferraro asked if there is any additional water that can be obtained from the Virgin and Muddy rivers. Mr. Entsminger replied that there is a total of 50,000 aft. of "pre-compact" water rights on the Virgin and Muddy rivers that pre-date the Boulder Canyon Act of 1929. The SNWA owns 15,000 acre-feet (AF) and leases another 15,000 AF, so 20,000 AF (or 40 percent) remains available for lease or purchase.

Mr. Entsminger continued to describe the SNWA's Water Resource Plan. It is a comprehensive overview of Southern Nevada's water resources and demands. It outlines how the SNWA will meet demands over a 50-year horizon. Mr. Entsminger noted the plan's importance—it is relied upon by the State Engineer to sign subdivision maps, and it is used by rating agencies for bond sales and SEC filings.

The SNWA's first Water Resource Plan in 1996 anticipated Colorado River water would exclusively meet Southern Nevada's needs until 2030.

Thalia Dondero asked how the Resource Plan affects people with well and water rights. Mr. Entsminger responded that it does not affect them at all, as it only accounts for people utilizing municipal supplies.

Mr. Ralston asked if the most recent Water Resource Plan is available online. Mr. Entsminger said yes.

Mr. Entsminger then introduced the topic of return-flow credits. Nevada receives a Colorado River "credit" for every gallon of treated wastewater returned to Lake Mead to be used again. Return-flow credits form the basis of the SNWA's Conservation Plan and facility-sizing.

To explain how return-flow credits work, Mr. Entsminger showed graphics demonstrating that by capturing, treating and returning water used indoors to Lake Mead, Southern Nevada is able to stay within its 300,000 AF allowance so long as outdoor consumption always equals the amount of river depletion.

Danny Thompson noted that the only savings in conservation that extend supply are made outside. Indoor conservation does not extend the supply because it is already recycled.

Bob Ferraro asked where the recycled water discharges into Lake Mead. Ms. Brothers responded that it flows through the Las Vegas Wash and discharges into Boulder Bay.

Scot Rutledge stated that despite the limited water savings indoor conservation provides, there are still savings in the form of energy. Mr. Entsminger agreed and explained that indoor conservation does not extend Southern Nevada's water resources; even though it has other benefits.

Mr. Rutledge then stated that in terms of population densities, indoor conservation could allow Southern Nevada to serve more people in the future with the same amount of water being consumed today. Mr. Entsminger pointed out that in the newer areas of town, which use low-flow shower heads and toilets, there is a smaller water-use footprint; but that only outdoor conservation extends the water supply.

Mr. Rutledge asked about water banks. Mr. Entsminger explained that Southern Nevada has two types of water banks: one with direct storage and one in the form of an exchange. The SNWA pays Arizona to directly inject a portion of its unused Colorado River allocation into groundwater reserves. When the water is needed in Southern Nevada, the SNWA would access that water in Lake Mead and Arizona would use their stored groundwater supplies. In California, they bank our water. When Southern Nevada doesn't need all of its water, California takes direct delivery of that water and uses it in that year. In a future year, when Nevada needs that water back, California reduces its use of Colorado River water and Nevada takes it out. There is no physical storage of water in California as there is in Arizona.

David Scherer asked how outdoor consumption is defined. Mr. Entsminger told him staff would provide the information. On average, a single family home uses 40 percent of its water indoors and 60 percent of its water outdoors. The majority of outdoor use is on residential landscaping.

Carol Jefferies asked if the water banked in Arizona and California can be fully relied upon. Mr. Entsminger stated that there are a series of contracts between Nevada and both states, which also include the federal government. These agreements are known as SIRAs (Storage and Interstate Release Agreements), wherein the federal government has guaranteed the delivery of this water on a set schedule. In addition, the SNWA maintains good relationships with both states, so it is not anticipated that the issue will become adversarial. If it did, the SNWA has a very strong legal position to take the water.

Mr. Goett asked how much water the SNWA has banked. Mr. Entsminger replied that the SNWA has a balance of 600,000 AF in Arizona and 70,000 AF in California. At a previous SNWA Board of Directors meeting, the Board approved an agreement with California to bank 200,000 to 400,000 AF over the next five years.

Mr. Goett then restated his understanding that by conserving indoor water, Southern Nevada could add more residents without increasing indoor consumption. Mr. Entsminger explained that if only high rises were constructed without a blade of grass or tree, Southern Nevada could supply another three or four million people with a minimal increase in indoor consumption. Conserving indoors does not allow additional housing units to be built—only outdoor conservation gives additional water to supply.

Mr. Rutledge commented that if we all conserve indoors, we could add more people to this community without bringing in more water because everything that hits the drain is returned to Lake Mead river. Mr. Entsminger responded that indoor conservation only reduces Nevada's Colorado River diversions.

Mr. Scherer commented on the 60 percent outdoor use/40 percent indoor use model. Mr. Scherer clarified the assumption, noting that if more residential units were constructed with limited outdoor use, Southern Nevada can support these units with minimal impacts to water use, because indoor residential water use is returned to the lake.

Mr. Ralston asked if a reduction in outdoor use would create excess water that could be banked in our own system. Mr. Entsminger noted that it is not only possible, but the SNWA is doing it. In 2002, the Southern Nevada consumptively used 325,000 AF. In 2011, Southern Nevada consumptively used only 222,000 AF. Southern Nevada drove down consumptive use by one-third while adding 600,000 additional residents. The unused water is being banked in California over the next five years.

John Restrepo asked under what conditions would Southern Nevada be able to use the banked water and whether Southern Nevada has relied upon banked water in the past. Mr. Entsminger responded that the SNWA has accessed a couple thousand acre feet to test the system, and noted the SNWA would use banked water if demand exceeded our basic apportionment. Secondly, both Arizona and California banks are available during shortage conditions and would be utilized if Nevada's basic apportionment was reduced.

Mr. Thompson noted that there are a number of other things that go on outside of the Colorado River Compact, but in the end Nevada must maintain only a 300,000 AF allocation. Mr. Entsminger promised that the committee will have an entire meeting on the Water Resource Plan.

Mr. Entsminger returned to the discussion of the 1996 Water Resource Plan. In 1996, Arizona did not use all of its water. Under the Law of the River, if a state is not using all of its water, other states can utilize the resource. At the time, it was assumed that there would be enough unused Colorado River water to meet demands until additional resources were brought online.

In 1999, Arizona's legislature formed the Arizona Water Banking Authority. Arizona began using all of its Colorado River allocation, and the SNWA no longer had access to it. Under U.S. Secretary Babbitt, the Department of the Interior promulgated the Interim Surplus Guidelines that gave municipalities in Nevada, Arizona and California access to water supplies for domestic uses through the end of 2016. However, those resources were only available when Lake Mead was above specific elevations.

IRPAC recommendations relative to finance included:

- "Growth pays for growth" model.
- The principle that water rates should contribute to new facilities.
- Incorporation of sales tax as a revenue source.
- Increased revenues should help fund conservation programs.

The 1995 CIP financing model assumed the following percentages:

- Connection charges - 57 percent;
- Sales tax - 28 percent;
- Commodity charge - 10 percent; and
- Reliability surcharge - 5 percent.

Sales Tax - The committee felt that Southern Nevada's tourism base should contribute to the water facilities through a sales tax. Approximately one-third of the sales tax revenue is generated by tourists.

Commodity Charges - Each new connection within the SNWA service area is charged a connection charge. It was estimated that the SNWA would collect \$800 million through December 2007; however, actual collections were more than \$1.2 billion. Through 2006, the connection charge collections were extremely stable.

New Commodity Charge - The commodity charge is a volumetric charge, which is currently at 30 cents per 1,000 gallons.

Reliability Surcharge - is .25 percent of the total residential water bill; 2.5 percent for other commercial customers in Henderson, North Las Vegas and LVVWD only. It is limited to a cap, which was imposed by the Nevada State Legislature.

Over time, the SNWA received additional revenue sources not reflected in the CIP such as proceeds from federal land sales. These sources were not included in the CIP because they are intermittent and unreliable.

By the end of the 1990s, Colorado River reservoirs were near full; growth continued at unprecedented levels; and SNWA revenues met annual debt service obligations while also adding to reserves. At the beginning of the 2000s, a new challenge was on the horizon for the SNWA: drought along the Colorado River.

Over the last 13 years, the Colorado River experienced the driest one-year, four-year, and five-year periods in recorded history.

Mr. Restrepo asked Mr. Entsminger to define “recorded history.” Mr. Entsminger responded that recorded history is considered recorded data since 1906, but reconstructed tree-ring records provide a look at the last 1,200 years on the river. The aforementioned conditions are the worst since 1906.

Ms. Brothers explained that there is 60 million acre-feet of storage at Lakes Mead and Powell, which helped stave off the drought. Assuming average flow of 15,000,000 acre-feet, the Colorado River system can maintain about four years of storage.

In 2002, the SNWA was relying on Interim Surplus to meet demands, but that water was only available at Lake Mead elevation 1,145 and above. Lake Mead’s elevation quickly dropped below 1,145, and Interim Surplus became unavailable in a span of about six months. As a result, the community needed an aggressive drought response. The SNWA focused on four components:

- Reducing demands/water consumption;
- Colorado River negotiations;
- Securing alternate supplies; and
- Addressing infrastructure needs.

Reducing demands became the centerpiece of the SNWA’s drought planning process. The SNWA implemented:

- Seasonal water schedules;
- Landscape development restrictions;
- Golf course water budgets;
- Increased water rates;
- More aggressive incentives for the Water Smart Landscapes Program.

As a result, Southern Nevada’s consumptive water use declined by 36 billion gallons between 2002 and 2011, despite the addition of nearly 400,000 people. The Water Resource Plan was updated in 2004 to reflect that the community’s drought response would replace lost resources from declining lake levels.

Mr. Ferraro asked if the SNWA projected reduced gallons per capita per day (GPCD) over the next five years due to the conservation program. Mr. Entsminger responded that Southern Nevada’s GPCD have shown a downward trend and is currently 222 gallons per person per day. The SNWA’s Board adopted a goal of 199 gallons per person per day by 2035.

Mr. Ralston asked if the GPCD goal is intended to exclusively target outdoor water use. Mr. Entsminger responded that the current 222 is not a consumptive use number. Looking at only consumptive use, a single family residential unit would be at around 75 GPCD. For purposes of comparing where Southern Nevada is versus where it has been, the SNWA has always used a diversion number.

Kirk Clausen asked if the economy has impacted the reduction in water use. Mr. Entsminger noted that it is impossible to separate the effects of the recession from the success of the SNWA's conservation plan, but did note the depressed economy has reduced water use.

Ms. Brothers continued and discussed the next drought response measure taken by the SNWA. In the early 2000s, the SNWA participated in consultations among Colorado River users, resulting in a number of historic agreements:

- California Water Banking Agreement; and
- Interim Guidelines for Lower Basin Shortage and Coordinated Operations for Lake Powell and Lake Mead.

The Interim Guidelines provided for:

- Shortage sharing guidelines among states;
- Coordinated reservoir operations of Lake Powell and Lake Mead; and
- A new classification of water - Intentionally Created Surplus.

Shortage Sharing - If Lake Mead's surface level is between elevation 1,075 feet and 1,050 feet, Nevada must reduce its consumptive use by 13,000 AFY. If Lake Mead is between 1,050 and 1,025, Nevada must reduce its consumptive use by 17,000 AFY. Below 1,025, Nevada is subject to a 20,000 AF reduction, and will re-consult with the Secretary of the Interior for additional shortage levels.

Mr. Ralston asked if the shortage numbers are cumulative. Ms. Brothers responded that they adjust at different levels. Lake Mead is currently at elevation 1,115. Mr. Entsminger added that in November 2010, we got to elevation 1,081. We were six feet from the first ever declared shortage.

Mr. Forman asked what the elevation is of the third intake. Ms. Brothers responded the third intake is at elevation 860 feet.

Coordinated Operations of Lakes Powell and Mead - The agreement provides for the coordinated management of the Colorado River system's two major reservoirs. It is intended to protect the elevations in both reservoirs.

Intentionally Created Surplus (ICS) - allows for the development of water supplies, separate from the Colorado River, to be conveyed to the river for credit. It also allows for extraordinary conservation of Colorado River water through projects. Some ICS water can be used during shortage. The SNWA has secured three resources designated as ICS water:

- Brock Reservoir - 400,000 AF stored there, which we can use at 40,000 AF increments/year (but not during shortage).
- Muddy and Virgin River leases/permits - about 30,000 AF (but can go up to 50,000 AF).
- Coyote Spring Groundwater - that can be up to 15,000 AF.

Mr. Entsminger explained that to replace a reduction in supplies due to shortage, the SNWA required a resource that is separate and apart from the Colorado River. Everything discussed so far has a nexus to Lake Mead. To achieve an alternate supply, the SNWA has been working to secure additional in-state groundwater resources for more than 20 years. These permits for unused groundwater in Eastern Nevada were originally filed by the LVVWD in 1989. There are two things needed to secure these resources: groundwater permits from the Nevada State Engineer to pump the water and a right-of-way from the federal government to build a pipeline.

Earlier this year, the Nevada State Engineer permitted 84,000 AF of groundwater, and in August, the Bureau of Land Management (BLM) issued a Final Environmental Impact Statement (FEIS). The SNWA anticipates receiving a Record of Decision (final right-of-way grant) by the end of this year.

Mr. Ferraro asked if the 84,000 AF is an annual volume. Mr. Entsminger responded it is an annual volume and a perpetual right. By way of 2007 negotiations, the SNWA secured an amendment to its return-flow credit methodology so if that 84,000 AFY is brought into the valley, it will be treated exactly like Colorado River water in terms of getting return-flow credits for that in-state water.

Ms. Jefferies asked if the 84,000 AFY will require treatment. Mr. Entsminger replied that it will need treatment, but it is of better quality water to start with.

Mr. Ralston asked why it is important to get it qualified as “quasi-Lake Mead water” as opposed to ICS. Mr. Entsminger explained that it would involve getting a Forbearance Agreement among all of the users in the Lower Basin to designate the water as ICS; however, having it designated as ICS could be another option.

Mr. Rutledge needed clarification on how the 84,000 AFY falls under the return-flow credit methodology. Mr. Entsminger explained if an acre foot of water is pumped from the groundwater project and supplied to two single-family homes in Southern Nevada, the water that hits the sewer system travels to the Las Vegas Wash and into Lake Mead. Under the 2007 Colorado River negotiations, this water falls under the SNWA’s return-flow credit methodology and we can take that amount of water back out of Lake Mead.

Mr. Rutledge continued and asked if there would be an effect on the SNWA’s long-term planning if the groundwater is not made available or if lawsuits reduced the allocation or delayed its timing. Mr. Entsminger responded there will be a lot of material provided to the committee on the groundwater

project and that is why the SNWA reviews its resource plan annually. The SNWA has shown how it absorbed losing tens of thousands of acre feet out of its portfolio within a six month period.

Mr. Rutledge asked if financing for the groundwater project is contingent on the amount of water allocated. Mr. Entsminger responded that the less water you have to sell, the more expensive it becomes. He then advised that at a future meeting, financial experts would be available to discuss financing the groundwater project in more detail.

Ms. Brothers continued by explaining that declining Lake Mead elevations caused SNWA to experience water quality problems at Intake No. 1, and it became apparent that an additional intake was needed to protect against the potential loss of Intake No. 1. Additional capacity was also needed at Intake No. 2 to temporarily defer construction of a third pumping station.

As Lake Mead elevations declined and summer temperatures increased, a temperature barrier built up in the lake (known as a thermocline), which kept Las Vegas Wash water right at the mouth of Intake No. 1. To remedy this, the SNWA put a 50-foot snorkel on Intake No. 1 to draw water from a deeper elevation and access better water quality.

Higher capacity pumps were also installed at Intake Pumping Station No. 2, which increased capacity from 600 MGD to 720 MGD. Marc Jensen informed the committee that the intakes are about 16 feet in diameter.

Additionally, water quality regulations were becoming more stringent. Constructing water treatment process improvements could have been more expensive than constructing a new intake to avoid the need for treatment improvements. Additional treatment process (activated carbon) could have cost \$85 million in annual operating costs on top of the capital cost. Therefore, in 2005, the decision was made to construct a third intake.

The third intake's components include a connector tunnel, access shaft, pumping station, intake tunnel and intake structure. Because of the changes made to Intake No. 2, the SNWA deferred building a third pumping station.

Mr. Ralston questioned why we were building the third intake if it can't draw water below 1,000 feet. Ms. Brothers explained that the pumps are set at 1,000 feet, but the SNWA could build a deferred pumping station and pump below 1,000 feet. Ms. Brothers further clarified that the third intake would provide water to the second pumping station and would access better quality water. Mr. Ralston stated that his understanding is that the purpose of the third intake is to protect against water going below the second intake. Ms. Brothers explained that if the SNWA anticipated the water was going to go below 1,000 feet, the SNWA would build the additional pumping station, which was part of the original project, but deferred because of money. Mr. Ralston asked if the current bond has the capacity to fund the third pumping station. Mr. Entsminger responded no.

Bobbie Miracle asked how much a pumping station costs to construct. Ms. Brothers replied approximately \$200 million.

Dave Ebersold asked at what level the SNWA would lose access to quality water from Intake No. 2 because of thermocline. Ms. Brothers responded at about elevation 1,020 feet. In 2014, once the third intake is finished, the SNWA will be able to draw better water quality.

Carol Jefferies asked if the Boulder City assessment is just for the tunnel without the pumping station. Mr. Entsminger said the assessment is just for the tunnel and the connection to Intake Pumping Station No. 2.

Continuing, Ms. Brothers explained that the third intake provides better water quality, avoids Las Vegas Wash outflow and reduces treatment costs. It also provides operational flexibility for changing conditions.

Mr. Rutledge wanted to know how much each foot in Lake Mead elevation equals in acre feet. Mr. Entsminger explained that when the river is full, one foot equals 100,000 AF, but Lake Mead is a “V” so when you get down to lower levels, one foot becomes 80,000 AF and less. Mr. Rutledge asked how many feet the lake would rise if Nevada used no water from the Colorado River. Mr. Entsminger responded three.

Mr. Rutledge asked for clarification on how Lake Mead and Lake Powell work together. Mr. Entsminger explained that as a result of the 2007 Guidelines, the goal is to have the two lakes be equal. Mr. Rutledge asked how many people depend on Lake Powell for water. Mr. Entsminger responded zero, but St. George is planning a pipeline into Lake Powell so the answer won’t always be zero. Also, Lake Powell is the Upper Basin’s savings account. According to the Colorado River Compact, the four Upper Basin states cannot deplete the flow of the river to less than 75 million AF over a ten-year period.

Ms. Brothers noted that the total project cost of the third intake is \$817 million. To date, the SNWA has expended \$500 million for construction. The intake is estimated to be completed in 2014.

Mr. Ferraro asked how many days a week the crews are working. Ms. Brothers responded three shifts, seven days a week.

Next, the committee discussed ongoing issues in the 2000s. Southern Nevada’s population showed no signs of slowing and the community was exceeding its Colorado River apportionment. In 2004, the SNWA Board of Directors brought together a 29-member citizens advisory group (IWPAC) to make recommendations to the Board related to conservation, resources and finance.

The 2004 IWPAC recommended aggressive promotion of water conservation through methods such as turf reduction. Since its inception, the SNWA’s Water Smart Landscape program has removed more than 160 million square feet of turf and saves nearly 9 billion gallons of water annually. Additionally, the committee recommended the decrease of total water demand from 272 GPCD to 250 GPCD by 2010, and to 245 GPCD by 2035. Those goals were met, and in 2009, the SNWA Board adopted a new goal of 199 GPCD by 2035. The SNWA is on schedule to meet its goal, with a current GPCD of 222.

The IWPAC made the following resource recommendations:

- Pursue all resource options considered in IWPAC planning scenarios. In response, the SNWA developed a diverse portfolio of resource options, which included groundwater banks, in-state groundwater, Colorado River supplies and additional conservation.
- Work with Colorado River Basin States and the Bureau of Reclamation to implement augmentation credits for non-Colorado River sources. The SNWA accomplished this by revising the return-flow methodology to include in-state groundwater.
- Continue to pursue ocean desalination as a long-term resource. In partnership with Southern California and Arizona, the SNWA participated in running the Yuma Desalination Plant. Additionally, the SNWA is co-funding a study to evaluate future basin demands and possible solutions.
- Pursue delivery of pre-Compact Muddy and Virgin River rights. The SNWA currently owns or leases a combined 50,000 acre-feet per year of water rights on the rivers.
- Utilize the Southern Nevada Water Bank and California Water Bank as “bridge reservoirs” to meet supply deficiencies. The SNWA has banked significant resources in both banks.
- Utilize surplus and interim surplus Colorado River water. When Lake Mead levels are above 1,145 feet, the SNWA can utilize up to 100,000 AF of Interim Surplus.

The IWPAC made a financial recommendation to extend the quarter-cent sales tax.

The 2006 Resource Plan was updated to include IWPAC’s recommendations. The 2008 Water Resource Plan included additional non-Colorado River supplies to meet demands. The 2009 Water Resource Plan reflected the Interim Guidelines’ new designation of water supplies. The 2009 Plan included a scenario to meet demands under shortage.

Mr. Scherer asked if there are any predictive climate models that help the SNWA’s planning process. Ms. Brothers responded that the Bureau of Reclamation, in conjunction with the Basin States, is preparing a Basin Study, which will contain climate scenarios. The report is expected to be released at the end of November.

Mr. Scherer asked if other municipalities have used climate studies for planning. Ms. Brothers answered that she believes that other municipalities are beginning to use climate studies now, but noted the science is relatively new to water planning. Mr. Scherer asked how reliable the climate studies are in predicting the future for planning purposes. Ms. Brothers said she feels it is a very new science and is under the impression that the West will have a drier climate in the future. Mr. Entsminger added that the SNWA is very interested in the science of climate change and will continue to track its evolution.

Mr. Entsminger discussed current drought conditions and the probability of shortage based upon historic records. Shortage is anticipated by 2025 - 2035. The elevation of Lake Mead is currently at 1,115 feet.

In closing, Mr. Entsminger stated that the last challenge the SNWA is facing is financially based, in part, to the reduction of regional connection charges. At the next meeting, the committee will discuss SNWA finances.

Discuss the committee process. Mr. Ralston asked when the financial subcommittee will officially start. Mr. Ebersold responded that the financial subcommittee will join the IRPAC committee on October 24.

Mr. Ebersold reminded the committee about communications outside of the meetings. The guideline is that members cannot communicate if such communication constitutes a quorum, which is eleven members.

Mr. Ralston asked Katie Horn to email the link to the most recent Water Resource Plan.

There were no further questions from the committee or discussion.

PUBLIC COMMENT

There was no public comment.

ADJOURNMENT

The meeting was adjourned at 5:50 p.m.