Statewide Roundtable Summit

March 1, 2012
Broomfield, CO

Transcriptions of All Table Discussions

Goals of the 2012 Statewide Roundtable Summit

Goal 1: Explore roundtable portfolios for several scenarios and their commonalities and differences

Goal 2: Brainstorm initial common implementation elements across portfolios to help inform further Basin Roundtable portfolio development

Goal 3: Identify implementation elements that need cross basin dialogue

Goal 4: Initiate long and short-term implementation efforts to meet both consumptive and nonconsumptive needs

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NOTE: Each particular comment has been made anonymous and speakers are indicated with a "___"

PART ONE: EXPLORATION OF ROUNDTABLE PORTFOLIOS -- COMMONALITIES AND DIFFERENCES

Discussion Session
Table groups organized by specific topic areas explored the roundtable portfolios for several scenarios, specifically addressing the commonalities and differences between the portfolios.

Table Topics:

1.1. Agricultural Transfers
1.2. Conservation & Reuse
1.3. Future Demands
1.4. Identifies Projects & Processes
1.5. New Supply

Discussion Questions (for all tables):

1. Discuss the range of [your table topic] and the different basis in the reasoning of other roundtables in developing their portfolio for a particular scenario.
2. For each scenario what are the major commonalities/common interests between differing portfolio elements? How about differences?
3. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Part 1.1: Agricultural Transfers

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Agricultural Transfers
• We need to explore legislation that will facilitate agricultural transfer methods to achieve: 1) water for cities to meet the gap, and 2) drought protection. • We need to educate the public on the role and value of agricultural in: 1) the economy, and 2) open space.
Minimize permanent agricultural dry-up by: • Using all "legs of the stool" • Getting creative to encourage continued farming: rotational fallowing, keep farms as long as is desired, help with estate/retirement planning, etc.
• There are other factors than M&I demand that impact agricultural dry-up (farm prices, aging farm population, lifestyle, new supplies). • The effects of conservation and reuse on downstream users and yields from agricultural transfers are unknown.
We should acknowledge the value of maintaining a viable agricultural sector and develop legal and financial methods to preserve agricultural production while allowing some agricultural water for municipal use without penalties.
• It is critical to preserve agriculture in all basins. This is a statewide issue due to environmental, social, and nonconsumptive benefits. • State assistance with developing alternatives to agricultural transfers (including conservation and new supplies) is crucial.
• We should develop partnerships between agriculture, M&I, and environmental interests through storage. • Agriculture is important! We should continue to build partnerships and water-sharing strategies.
• We need to explore creative alternatives to agricultural transfers. We should change the name of our portfolio to the "Agricultural Transfer to Developing Agriculture Portfolio." • We should develop storage of agricultural water when available and where possible.

Agricultural Transfers
Moderator: April Montgomery
Note Taker: Hal Simpson
Table Members: Chris Kraft, Matt Bliss, Greg Trainor, Arista Hickman, Garrett Yeates, Paul Robertson, Mike Stiehl, Diane Hoppe

Discussion:
Question 1:
After introductions, we agreed that there was a diverse group of participants at the table. ___ stated that he thought nearly everybody expects Ag transfers to occur and that it is considered "low-hanging fruit". ___ responded that as a dairy farmer, he viewed Ag transfers as undesirable due to the importance of Ag to world food security. ___ pointed out that the ability to sell water rights are an important aspect of water rights ownership and most farmers want to be able to do so. ___ did not agree and strongly believes that it is immoral to sell water rights and farmers should cooperate to prevent the sale of water rights and focus on ATMs. ___ asked if farmers want it both ways? ___ responded that the economics of farming are changing and large corporations are purchasing farm land for long term investment opportunity knowing that food security will keep farm lands valuable and profitable. ___ indicated that farmers in the Grand Junction area don't want to farm any longer and want to sell water and land. They don't even want to do ATM. ___ stated that if farming is profitable that people will want to farm or sell to other farmers or investors. ___ said the landscape is changing and that the price of farm land has gone up significantly in the last six months. ___ asked if there are better crops to grow that are more profitable or less water consuming? It was pointed out by several that farmers will grow crops that are most profitable if the water is available and a market exists. ___ said water law changes may be needed to allow ATMs as well as to incentivize ATMs. ___ said he did not think that water law changes are needed and gave examples of programs under the Fort Morgan Canal where he farms that involve leases with Xcel Energy and the City of Fort Morgan. ___ asked if crops are changing to higher value crops? ___ said that in his area that corn and alfalfa are high value crops and support the dairy industry. ___ asked if other high value crops or less water consuming crops are being considered in other areas. ___ pointed out that CSU is doing a lot of research in this area at locations in eastern Colorado.

Question 2:
___ stated that the Rio Grande RT did not worry too much about Ag transfers or exports from the San Luis Valley since it has been tried in the past and has not been successful. The cost of water in the San Luis Valley is relatively low in his opinion and is a factor discouraging Ag transfers. ___ said value of water in the South Platte basin is much higher and that Ag products are a major export for this area. ___ said the common thread in the scenarios presented by the various RTs is to preserve Ag lands on the West Slope and minimize transfers on the East Slope. He said to prevent this new water supply projects to meet the gap are needed. He asked if there are ways to incentivize the protection of the Ag economy and reduce dry-up? ___ said we don't want to have to regulate water from Ag transfers and smart Ag transfers are needed to minimize the impacts. ___ said that Ag transfers will change in the future in response to the economics of Ag being more profitable. ___ said research by CSU and others are finding ways to reduce the CU of water by deficit irrigation and planting lower water consuming crops. ___ said the perception is that 85% of water use is by Ag users and that farmers are not doing enough to use be more efficient. ___ pointed that more cooperation is needed with farmers and cities as ATMs are

implemented so that transaction costs are reduced. He cited recent efforts to stream line water law to facilitate ATMs that this failed due to resistance by the water bar and cities. ___ said cities need assurances that ATMs can provide certainty to pursue an ATM project. ___ said that cities may have to pay more for water to provide that certainty. ___ asked how to convince urban residents that farmers are using new and best technologies. ___ said that an education effort is needed to inform citizens of the value of Ag industry to local economy and of the efforts to use new technology. He said the Grand Junction area that orchards and vineyards are using drip systems to efficiently irrigate. ___ cautioned about using high efficiency irrigation to allow expanded use as has happened in the San Luis Valley. Sprinkler systems have allowed more land to be irrigated and as a result the water table is dropping creating concerns about sustainability. ___ pointed out that the higher populated areas will decide policy and laws since they will have more representation in the legislature.

The group then focused on its two critical points and discussed the importance of reservoir storage to deal with drought conditions. The type of storage options included new storage, existing storage space lost to sediment and reclaimed by dredging or removal in the dry, and aquifer storage. We also discussed the need for legislation that would facilitate or encourage ATMs that could provide water for cities and for drought protection by moving the CU to storage. Finally we agreed that the public needs to be better educated on the value of agriculture to the economy and for providing important open space. After more deliberation, we agreed to the two following critical points:

1. Explore legislation that will facilitate ATMs that will provide water for cities to meet the gap and for drought protection.
2. Educate the public on the value of Ag to the local economy and for providing opens space.

Agricultural Transfers
Moderator Name: Carlyle Currier
Note-taker Name: Kaylea White
Additional Table Members: Kelsea MacIlroy (grand student), Joe Frank (L SP), Ginny Brannon (DNR), Chuck Howe (professor), Dale Wiescamp (Rio Grande), Mrs. Wiescamp, Tom Simpson (Ark), Lisa Darling (Aurora), Louis Meyer (west slope).

What are the two most critical aspects of your conversation?

Consensus -- that it is preferable to minimize permanent agricultural dry-up, for many reasons: local economy, food, revegetation, life-style, by:

a) Providing assistance to farmers and municipalities using the other legs of the stool
b) Providing other options/choices to farmers to encourage continued farming – get creative (e.g. estate planning, rotational fallowing, etc.)

Discussion Question: Discuss the range of Agricultural Dry-up, Common interest – and the different basis in the reasoning of other roundtables in developing their portfolio for a particular scenario
Notes:
Buy & dry, South Platte economic development. Arkansas Basin – sales go to paying off debt. Most of agricultural value is in the water.
Aging agriculture population – the next generation is not farming. It's very expensive and difficult to maintain an agriculture economy.
(Aurora) Purchase for municipal future use, but maintain agricultural use as long as farmers want to stay. Helping with estate planning and retirement 401(k) plans. Not many multi-generation farms left. Aurora is no longer buying land, just water.
(Arkansas) Roundtable trying to get as little dry-up as possible.
(South Platte) Fear factor from what happened on the Arkansas River, very rural based. It's about options/ alternative transfer methods – for farmers and for municipalities.
In Crowley County – Colorado Springs and Aurora, thousands of acres at a time were dried up. Revegetation with continued management is very important. Rocky Ford ditch was managed much differently: continued farming; revegetation with landowner management.
(San Luis Valley) Where will the food come from? Too many wells are being drilled, depleting the aquifer. May have to dry up about 40,000 acres in the San Luis Valley in the next few years. Pivot sprinklers with downward spray still result in large evaporation. Israel has had a great irrigation system where water is pumped and delivered via drip – no evaporation.
(Western Slope) Very different on the Western Slope – plenty of water in small communities. The two big threats are 1) energy: oil shale - large water consumption and, 2) the Front Range is buying up pre-compact water, leaving Western Slope with junior water rights that are unprotected during a compact call. For the first time, food councils are being formed to grow food locally…the new generation will change agriculture. There is a need to change Colorado water law to help agriculture make the efficiency changes we need.
___ in their basin, very efficient. Farmers are making money now in the Arkansas Basin, and it is hard to buy water for municipal use. Alfalfa at $350/ton is very high.

Notes (continued):
(sociology grad student): The new generation of farmers may change the types of conversations.
Commodity prices are high and so farming will continue. How will we recharge the aquifer with all this continued use?
We need to reframe the conversation with tools and alternatives to keep farmers in the business.
Leasing water still requires dry up and rotated fallowing – same amount of dry up. It's not a lot different than buy and dry.
But doesn't fallowing part of the land keep farmers in the business? Can fallowing help productivity of the land?
Fallowing seems to decrease productivity.
Study now shows that fallowing can increase productivity.
Concern that Western Slope water is being used to maintain bluegrass lawns on the front range.
Working on promoting xeriscape lawns. What about storage of agricultural conversions?
In order to firm any yield, we have to have the "buckets" (storage) – we don't have enough. We need a place to put the HCU so we can use it.
Water law should change.
the Super ditch is about storage.
If both water and farming are commodities, what are we as a state going to do about it?
I believe it is a state's responsibility to provide options for farmers – i.e. the roundtable process with state leadership in making the plan.
All roundtables looked at preserving agriculture.

Discussion Question: Are the portfolios discussed this morning realistic? 20% dry up on the Western Slope, 20-50% on the South Platte, etc.

Notes:
Is the question if the numbers are reasonable? Acceptable? Or is the question, is there anything we can do?
(South Platte) Urbanization & IPP (12%) will happen, and other % may happen – The other % will happen its a reality without all the "legs of the stool" and options for farmers.
We are affected by national agriculture policy.
The next farm bill will likely be very different from anything in his lifetime.
The dry up numbers are too low. Given the path of least resistance, the dry up acreage will continue to increase.
5-20% dry up is a good idea of the magnitude…depends on other legs of the stool (conservation, etc.).
IPP will happen. What is the re-vegetation & management plan for fallowed land in the San Luis Valley?
We need a dryland grass that will stabilize the soil – and need to establish this grass before dry up.

Agricultural Transfers
Moderator Name: Jim Yahn
Note-taker Name: Kelly DiNatale
Additional Table Members: Gerry Knapp; Steve Larson; Doug Robotham

Discussion Question:
Discuss the range of Ag Transfers and the different basins in the reasoning of other roundtables in developing their portfolio for a particular scenario

Notes:
How committed are municipality members to implementing portfolio strategies?

- There are always farmers in the Arkansas basin wanting to sell water. The agricultural community wants to sell water that exceeds municipal ability to move and buy water.
- Will recent high farm prices impact the market for water?
- Increasing agriculture demands – Leprino cheese factory in Greeley
- Water quality can be a consideration
- Portfolio tool as a trade-off tool
    - Conservation provides some reduction in demand, but West Slope vs. Agriculture as the default needs to be changed
    - West Slope development is harder and more costly than agriculture
- Average age of farmers is getting older
- How will the agriculture market change if the West Slope project is developed?
- Farm economy needs to change – long hours, poor return. It is not an attractive lifestyle to young farmers
- Ranges in the portfolio tool are a guess
- If 48% agriculture dry-up is too high, what then?

Discussion Question:
For each scenario, what are the major commonalities / common interests between differing portfolio elements? How about the differences?

Notes:
- Every roundtable did acknowledge some need for West Slope water
- Differing views on conservation savings
- West Slope Basin Roundtables didn't agree with Metro conservation white paper savings
- Work West Slope water diversions into conservation savings
- How to impose GPCD limits / conservation savings?
- Can the state impose or enforce conservation measures?
- Reuse can increase efficiency but at a reduction of the agriculture supply that depends on the return flows
- There will be some agriculture dry-up regardless of any new supply development or conservation

- Portfolio tool has weaknesses, i.e. Arkansas basin view of South Platte agriculture dry-up is less than South Platte IPPs

Discussion Question:
Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Notes:
- Can Basin Roundtables boil down to 1 or 2 scenarios?
- May need to revisit some assumptions such as conservation
    - Others may think they are correct
- Reuse needs refinement – the portfolio tool is too simplistic

Discussion Question:
What are the two most critical aspects of your conversation that you would like CWCB, IBCC, and other roundtable members to know?

Notes:
- There are other factors than M&I demand that impact agriculture dry-up (farm prices, aging farm population, lifestyle, new supplies, etc.)

Portfolio Tool is too simplistic
- Agreement that some West Slope water will be needed and ways to go on agreement of quantification of conservation savings
- Reuse on downstream users is unknown
- Agriculture transfer yield

Discussion Question:
What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

Notes:
1) Explore shared shortage agreements via an early shared vision planning process
    a. Assisting with permitting and joint strategizing on mitigation
2) Identify wet water alternatives in advance to address potential compact calls and other risks
    a. Groundwater recharge
    b. East Slope storage to address potential compact call
3) Without a robust risk management strategy there should not be new water depletion enabling projects

Agricultural Transfers
Moderator: Todd Doherty
Notetaker: Caitlin Coleman
Additional Table Members: Sean Burken, Mary lou Smith, Don Magneson, Gene Manuelo, John Stencil, Heather Dutton, Mark Hardy

Range of ag water transfers and the different basis in the reasoning of other roundtables in developing their portfolio for a particular scenario
If we're starting to talk about greater than 20% is that really something we want to see in CO
We know we'll need more supply. It's developed 1. New projects 2. Ag transfers 3. Conservation/reuse—a lot of conservation is really reuse. Some initiates that Denver Metro and other areas are pursuing aren't conservation, that's reuse. Water providers are efficient in how they're reusing supply. 20% threshold. New supply is new projects or ag. How do we deal with the pressure that ag is dealing with?
we had available supply. We're reallocating now
if we reallocate water, ag water, we realloce food. People are starting to understand
The state needs to raise dam levels, store more water. Use aquifers for storage. Need new storage. Pipelines or other ways to bring water from outside. Ag is the only place water can come from now.
put aside imports of water from outside. Focus on portfolio. Let's talk about storage
Storage has a use and purpose for M&I demands. Storage might be a common area of interest for M&I and Ag. What type of storage. At what expense? Is this the best state that we should ag? We can't fed our population doing ag as we do it today
Ag has been keeping up with food demands through tech
I like the idea of M&I working with ag. Could also cooperate with env. On storage. Enlarging, smaller in-field storage, improve storage we already have. Push for storage that we can get cooperation. Use what we have better.
Most portfolios—no solution from one leg of the stool. Once transferred ag is gone. Everybody recognizes the importance of ag.
Small storage at high altitudes.. if our population doubles we'll need more food and water. We need to grow locally.
Ag doesn't have motivation to conserve water in ways our laws are written
People need to be educated on how ag works and the use of water conservation to be done through sprinklers. Producing less using a sprinkler. Return flows. Water stays in the river so that makes up return flows. That may be one of the next battles—sprinklers w/o return flows.
Are we missing opportunities by painting with a broad brush?
we tend to overirrigate. If you tell me the line we'll have more production
Commonalities/interests between portfolio elements and differences:
Storage between enviros, M&I, and Ag—come together. Small storage, expand existing storage, high altitude storage because it's colder.
Conserve water in Ag. On a case by case basis- not someone else's return flow. Legitimate ag conservation might build up enough incentive. Evaporation! – some farmers might have water we could conserve to benefit the farmer.
Using efficient nozzles, concrete lined ditches etc. in valley but now all water is going into plants and not recharging the aquifer. They have market system now. It works because it's a closed valley but probably isn't possible on the S Platte

Over irrigation, we produce more when we don't have as much water because we overirrigation
A commonality is that Ag. Is important to the state. We Should do what we can.
Are loss of irrigated aces and loss of production tied? We need to explore. We need to continue food production. Does that mean we can't eliminate acres? Balance efficiencies. How do we make systems work to incentify efficiencies? Generate more food production units with less water—it's impossible.
How to go about it?
Values- GMOS? We can produce more food with less water. Cattle industry—are we ready to shift away from cattle? Then we'll bring in cows from S America! Should everyone be a vegetarian?
Does that confirm your portfolios or do you need to make changes?
80% of projects won't be in S Platte. It'll be 50% if we're lucky. In rural places they can't do conservation. We need to paint the worst scenario possible. We'll lose a huge amount of water.
-ag is critical. Not silver bullet
-need to find ways for ag water to be leased

What are the most critical aspects of your conversation?

1. Storage. Partnership of Ag, M&I and Env. Through storage.
2. Ag is important and we should continue to build partnerships/water sharing strategies

Agricultural Transfers
Moderator Name: Mike Shimmin
Note-taker Name: Mark McCluskey
Additional Members: Dan Hendrichs, Mike Applegate, Tommy Raye, Steve Shea and Ellise Bergstens

What are the two most critical aspects of your conversation?

1. It is critical to preserve agriculture in all basins (statewide issue) due to environmental, social and non-consumptive benefits.
2. State assistance needed to develop alternatives to agricultural transfers including conservation, brining ne supplies and transbasin diversions.

Questions:

1. Discuss the range of Ag transfers and the different basis in the reasoning of other roundtables in developing their portfolio for a particular scenario.

Question was asked if it was appropriate for a roundtable to take a position on another basin's projects?
Group discussed how entities are currently implementing plans to meet needs by buying portions of ditch companies to meet needs thus, taking water from agriculture (acres out of agriculture).
Group discussed the concept of rotational fallowing and how it has concerns with return flows and keeping good employees given the temporal nature of fallowing.
Arkansas Basin looked at food production to assess the true value of agriculture including social and environmental values; Goal of Ag committee was to minimize Ag transfers by understanding the true value of agriculture.
South Platte Basin has the 6th largest agricultural producer in the states (Weld County); least impact on Ag requires 200,000 + acres to be transferred; it seems to be a 'easy' alternative when compared to transbasin projects which have high costs. Agriculture in the South Platte Basin has environmental implications (wetlands, sloughs, etc.) drying up agricultural lands would decrease habitat. Discussed water rights have return flows which are defined at specified points on the river to protect downstream rights but this may short circuit environmental benefits in between the irrigated land and the river.
Gunnison would prefer to no lose any agriculture in the basin. Water rights are fixed to the property due to a federal project in the basin (Blue Mesa).
Group discussed the perception of the tool due to the default calculation the amount of Ag transfers required to meet the gap. It appears this is the 'do nothing' alternative.

2. For each scenario what are the major commonalities/ common interests between differing portfolio elements? How about Differences?

Most basins agreed that the goal was to minimize Ag transfers.
Gunnison Basin approach was to look at the 'middle of the road' assumptions when developing a portfolio.
Arkansas Basin approach was to look at the 'best' and 'worst' case scenarios to bracket the potential impacts.
South Platte Basin looked a range of potential scenarios using the portfolio tool to see possible impacts.

The common theme was to preserve agriculture in all basins. Group felt the impacts of one basin reducing their agricultural production (via Ag transfers) would have effects on the state's economy as whole.

3. Does what you've learned confirm your roundtable's portfolio or do you think you will need to make changes? If so, what changes?

Arkansas Basin didn't come up with a single scenario; developed several scenarios and focused on 3 possible scenarios. Kept extremes in the analysis and incorporated climate change. In the Arkansas Basin the price of water is too high to buy water for agriculture ($10k acre).
South Platte Basin looked at conservation and tried to figure what is actually achievable in the basin. Expressed concerned with the binary nature of key projects in the basin. If some of the projects do not get completed have a drastic impact on the gap and how future needs would be met.
Gunnison Basin has observed the average farm size is going up, not seeing small farms.

4. What are the two most critical aspects of your conversation that you would like the CWCB, IBCC and other roundtables to know?

It is critical to preserve agriculture for all basins in the state; it is a statewide issue which has environmental, social and non-consumptive benefits across the state.
State assistance is needed to develop alternatives to Ag transfers including conservation, new supplies and transbasin supplies.
Agricultural conservation does not work, return flows from agriculture are reused several times as the water flows out the state; provides return flows to the river providing base flow.

Part 1.2: Conservation & Reuse

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Conservation
• If applicable, all conservation practices should be moved forward as soon as possible. • We need to incorporate land-use planning (as appropriate through regulations) and water planning.
• Conservation should be pursued to its maximum extent. • We need to develop legal and economic mechanisms that enable the use of conserved agricultural water to benefit the entity or individual conserving the water.
• One size does not fit all. • Agriculture should look at more water efficiency (although water currently makes this difficult). • We need a better understanding of the agricultural tipping point (dry-up) and nonconsumptive impacts. • Conservation should support agriculture, and agriculture should not be destroyed. • We need more statewide conservation/water education campaigns.
• Statewide, there are negative impacts to recreation and economic opportunities without more water conservation efforts. • The West Slope needs to recognize and start to conserve to the same levels as the rest of the state.
• We (State et al) should look hard at agricultural efficiency opportunities while protecting the prior appropriation doctrine. • We should focus on M&I conservation needs to be less about indoor and a lot more about outdoor opportunities for savings.
• We need to explore water conservation causes and effects on other projects in other areas of the water industry. • Reuse needs to be separated from water conservation and be its own issue. • We need to talk about the cost of water conservation to utilities and customers.

Conservation
Moderator Name: Steve Harris
Note-taker Name: Kevin Reidy
Additional Table Members: SeEtta Moss, Sahnna Koenig-Mancuso, larry Cerillo, Wendy McDermott, Eric Brown, Karn Seigelmeyer

What are the two most critical aspects of your conversation?
Not one size fits all
Ag. Should look at more conservation –but water law issues
Need a better udnerstnading of the ag. Tipping point and the non-consumptive impacts
Conservatio should support ag. Ad ag. Should not be destroyed
Need more statewide conservation / water campaigns

Discussion Question: #1
Notes: Question #1: What does the group think about how much goes to the gap?
three of the five scenarios in the Arkansas did not go to the gap. She did not agree with this. Basically it was a response in opposition to the west slope. Low conservation is totally unacceptable and needs to be higher priority. At least med. And need to talk about high.
Should be high-west slope water is 100% consumable on E. slope
Colorado BRT played with many different scenarios. COBRT mantra was "all high conservation scenarios" If you are taking it over divide, you have to use it to extinction. Additionally, the CO cooperative agreement requires high level of conservation from Denver. Interested to se what is conserved to go back into river for non-consumptive.
Thinks conservation is particular to each basin, 1) what is realistic? 2) What technology do for savings? Each basin has to be looked at independently and only a certain portion can be given to the gap.
The SWBRT did 17 scenarios, submitted 3 scenarios. Want flexibility in drought and want to send a conservation message to rest of state. High conservation = 50% to gap. One size does not fit all fro regulations and how does a community near state line contribute to gap?

Question #2: What are commonalities? Unless we go to extremes, does not close gap.
One commonality, conservation is one part of solution. Everyone aware and recognizing their ability to conserve. everyone is doing what they and o and will it.
RT's have general interest in reducing ag. Dry up. Would like see state look at this, what is tipping point for ag. Dry up?
Commonality is politically based

- East vs. west slope - conservation for east slope , not as much for west slope
- Basins telling someone else what they want (directed messages at other basins) in terms of scenarios
- How different basins are impacted differently

Question #3: Do we need to make changes to roundtable portfolios?
Arkansas- had portfolios and did not like conservation gap filling, should have higher conservation
SW-Do not think would change them but;

- Wants to wait for impacts to non-consumptive and river flows

Discussion Question:

- Same with ag. Study; wants to understand tipping point better

COBRT- Portfolios are starting point not end all be all

- What is the full sorry with Ag. ?
- When saving water for Ag. Really thinking of keeping water in river.
- Regionally: basins are all differently

MetroBRT- Wouldn't change portfolios

Conservation
Moderator Name: Mark Koleber
Note-taker: Taryn Hutchins-Cabibi
Additional Table Members: Greg Fisher, Chuck Wanner, Bruce Hutchins, Daylan Figgs, David T., Mark Fuller, Todd Hagenbuch, Leah Opitz

What are the two most critical aspects of your conversation?

A. Conservation should be pursued to its maximum extent.
B. We need to develop legal and economic mechanisms that enable the use of conserved ag water to benefit the entity or individual conserving the water.

Question: Discuss the range of conservation options
Because of drought water use in CO has changed in last 10yrs and recognizing how we are going to "get more water" the # is not where we should focus we just need to implement and "prove it"—speak w/ action and not #'s
Why are there zeroes in the yield
This piece is hard to see in the tool
that should be explained. Also described the "tool" as a whack-a-mole, if conservation is down, the other things are up. High demand should = high cons. And high supply
That is the approach that the CO used; that's how it's an integrated tool.
The more conservation, the less stress on ag transfer & new supply – but the trade off tool has limitations and shouldn't be used as a strategy.
CO focused on the goal and political statement rather than planning a strategy Conservation has to be a critical part of the solution. Tool is just a starting point for discussion. Conservation is an "apple pie thing" where as ag transfers has more consequences-need to know ag tipping point before you can determine levels of conservation
Policy Wuestion-"What does State of CO want to do" the direction or goal of conservation needs to come from the state not the people whose job it is to keep water flowing to the tap (water managers).
Value attached to the bluegrass and H2O utilities can't go out and mandate its removal and there are also opportunities for ag to increase efficiency. Need better understanding between values.
Disconnect between utilities and city planners.
Tools benefits are that it helps set side bars for the discussion.
DF: Wants a consistent statewide target to then examine the other pieces. Would help with tradeoffs.
#s illustrate different values and thought process. This needs to be addressed first. 463k is no more realistic than 0.
is it worth developing the # first or doing it by implementing piece by piece. (BH, DT think imp approach is ok)
Economics of conservation speaks for itself. But education is the piece or misunderstanding that stops these things.
What is achievable from Denver Water's perspective?
that reflected in portfolio. But there are ops for more or the best guess.
Conserved into a hole – need to shut off sprinklers to recharge aquifers. Already seeing ag dry up but for different reasons. Value in SLV is ag. Irrigation conservation is a focus (but sounds like "conservation"=turn off sprinklers on vol. basis.

In the valley, conservation is cost driven.
the Valley is a test bed for the rest of the state and the role of ag in the economy
Have to look long term and focus on saving ag and reducing demand, look at $ piece (incentives). Key is the policy

Discussion Question
Major commonalities/common interests
How to reach common ground?
It's a political question. You can't sell taps on water conservation. Maybe answer is a renewable water standard like energy.
Do we have to look at bluegrass v. food?
How do you make sure conserved H20 goes where you want and not just the next downstream user. Can you apply conserved H20 to a pre determined component is a big unknown. Or is consv. Just using less and no worrying about what happens after. If we want to look at what to do with that water then we need to look at CO water law
That is worse for ag consv. Than muni
this is the issue behind the public trust doctrine
So does there need to be a market based approach? It's always about use it or lose it.
Conservation decreased return flows
Are we conserving to benefit other parts of the state
Tool here focused on M and I consv should ag consv be part of the tool?
Ag is a bit of a sacred cow and we need to examin how things can be improved-about incentives
bummer? To conservation is where/how the conserved H20 is used. That is a change in water law that needs to be used
Ark & S. Platte compacts impinge consv due to downstream flow requirements
but using water more efficiently can still occur within this context
Everyone feels like they have a target on their backs. Should water law be more regionally discussed or basin-by-basin rather than at the state level – what's the conservation?
that's dough. Federal solution is not the answer. But feds should use incentives or industry regulation to spur discussion.
CO water law will have to morph at some point. Can't think outside the box because utilities are too risk averse.
Will it get to the point where action is taken when we hit a crisis situation?
Cost is part of what will drive this
reuse barner is public perception
There are foar too few people working on conservation to result in the innovation necessary to drive down costs and incentivize.
Use competition to incentivize folks to conserve like in Australia.

Conservation
Moderator: Sue Morea
Note-taker: Denise Rue-Pastin
Additional Table Members: Paul Flanning; Brett Gracely; Will Kaoger; Mark Shively; Barbara Vasquez; Mike Wageck; Regan Waskin

The two most critical aspects of the conversation included: 1) Statewide, there are negative impacts to recreation and economic opportunities without more water conservation efforts; and 2) The West Slope needs to recognize and start to conserve to the same levels as the rest of the state. In essence, however, the groups most critical comments and observations are summarized under Discussion Question #2, below.

Discussion Question #1: Range of Conservation Options
The group noted from the outset that scenario planning wasn't so much about the numbers as much as it was exploratory. It was also indicated that the Water Conservation and Reuse Technical Advisory Group struggles not only with the science and feasibility, but social and political issues as well. Finally, the extreme drought over the past ten years, plus the troubled economy all play into the range of conservation options.
There was mention that a 1-2% reduction of water use per year through conservation measures would be reasonable. Education and information would be vital to achieve this goal, however. One area where education may help relates to the confusion over average water use versus per capita water use. As an example, on the West Slope, per capita/day use is high due to tourism and second home ownership. The group decided that a key to keep in mind is that demands are different for each Basin and for East versus West Slopes. There is not a one size fits all with regard to conservation. This brought about a question: why has the East Slope looked at such low strategies in the toolbox, while the West Slope has looked at medium to high strategies? In this regard it was pointed out that the problem from the East Slope's perspective is that they have done about at much as they can do without regulations. Additionally, what are the true costs of these measures? The group definitely agreed that there exists a vital need to work more closely with developers.
In summary, it was agreed that the issues were all the same whether East or West Slope, large or small water providers. East Slop providers need to implement actions. The West Slope needs to step up to the plate regarding conservation. It was noted that the latter is important for recreational purposes.

Discussion Question #2: Most Critical Aspects of Conservation

1. The regulatory process on the East Slope is disassociated from the reality of saving more water.
2. The West Slop needs to recognize and start to conserve to the same levels as the rest of the state.
3. If the Front Range municipalities had interruptible supply agreements with the agricultural sector they could use the water for other purposes (e.g., for growth, to re-charge supplies); there needs to be more partnerships with the agricultural sectors.
4. Need legal protection related to saved water!
5. There are huge and negative impacts on agriculture and the economy if there is not enough water.

Finally, the group wanted to stress that it is important to realize that all of the scenarios being looked at are in response to extreme drought even though there is now a more abundant water situation/supply.

Discussion Question #3: What Do You Do With Conserved Water? What Percentage Goes to the Gap?

[NOTE: The group was starting to run out of time]
Saved water should be put toward the gap because it puts off building new supply. Whether conserved water goes to the gap is a 'wait and see' situation.

Discussion Question #4: High Levels of Conservation Versus Agricultural Dry-Up
[NOTE: The group was starting to run out of time]
There is no way around it—solutions will have to be a combination of conservation and agricultural dry-up.
Miscellaneous

- The economy is key—a lot of conservation is already occurring because people are losing their homes (i.e., no water use or sales) and having to choose between food and watering the lawn.
- There is a strong link between agriculture and the economy.
- There is a strong link between agriculture and return flows.

Conservation
Moderator: Wayne Vanderschuere
Note-taker: Veva Deheza
Additional Table Members: Kevin Lusk, CSU; Jorge Figeroa, WRA; Sally Covington, Denver Water; Mike Berry, Tri County WCD; Emily Coll, Castle Pines Metro; Randy Carvery, Agriculturalist in SW CO; Mark Morley, CO Springs Private Utility

Range of Conservation
How was it represented in the portfolios for part. Scenario
Promote and accelerate water efficiency; believes that high conserve. Strategy would take significant investment and effort but it is doable. Concerned that morning panel believes it is NOT doable so wants to know from group why they don't think it's doable; equates the debate to manuf. Debate
From small utility perspective conserve. Reduces need for capital improvement projects so they need conserve; they don't want to drink DW reuse water so instead will look to conserve. To extend water supply
DW struggle is conserve. Savings achieved so far permament; have behavios been changed temporarily; is this still drought shadow; if you put all stock in higher number of conserve. And you don't achieve it then it could be a problem; will rate of change decrease over time
water tiered rates and system losses
Good discussion about leak detection and system water audits- unaccounted for water
WV talked a little about 1051 and consistent methodology to capture this data
Commonalities in each scenario. Commonalities between portfolios? Differences?
why is high strategy not doable or easonable as morning panel eluded to
Savings associated with outdoor use in low, med high levels is already being surpassed by CO Springs. Nor more to get; can't go lower; CSU has already gone past 34% savings and can't get 34% more on top.
higher confidence by utilities in the lower strategies- not so much with higher #s is it practical, economical, doable
Passive conservation does not create more water system because its all indoor water use
Demand mgmt even 1% reducation in GPCD still results in more water being used because population is increasing
Return flow
using passive conservation and applying it all to the gap is a complete fallacy it does NOT reduce the gap. Only conservation that reduces gap is when you reduce consumption
Real conservation on conservation needs to take place on farms; need better data to determine what you actually need on farm; ag conservation needs to be part of statewide conservation; need $ to get that data and you need a source of $$; ag is the largest consumer of water and the conservation needs to focus on ag conservation but in the context of mkt based
state of the art metering is needed in the state for better data collection and monitoring of water use
State has not looked at the high conserve strategy and its positive benefit or impact to the ag economy
Why you've learned confirmed your roundtables portfolio?
Now she understands why metro RT did not apply any conservation savings to the gap
we're just guessing about highs and lows did the portfolio tool use conservation or define it as domestic or does it include outdoor irrigation? Has questions about how conservation is represented in tool. Need

to GET RIGHT AT outdoor irrigation component of conservation instead of focusing on inside the house.
Need to perfect irrigation techniques
Maybe we should go back and look hard at ag. Efficiency opportunities while protecting prior app.
Doctrine. (Group concensus lots of heads shaking in affirmative on this recommendation)
Focus on non productive consumption in ag sector your waste is another person's supply
Focus on M7I Conservation needs to get out of house and more on outdoor irrigation
landscape certification statewide program

Part 1.3: Future Demands

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Future Demands
• There is a need for better data on projected water demands of energy development and associated population increases. • Regardless of high/medium/low demand, in all likelihood none of the demand scenarios are adequate to capture nonconsumptive needs and the opportunity to allow concurrent uses.
• A more comprehensive, statewide discussion of conservation and its impacts on demand should take place to see where all basins stand and why. • The potential impact of oil shale development drastically changes demand scenarios. Are the projections valid and should they be separated from other municipal and industrial (M&I) projections?
• Oil shale demands have been over-stated; new studies show a demand of 100,000 acre-feet (KAF). • Projections assuming that water will limit growth are unrealistic.
• We need to sequentially plan for low demand as the first absolute need (in the short term), followed by medium/high demand (in the long term). • We need more specificity in developing municipal demand-sector values.
• There are existing demands for the environment and recreational needs that are not reflected in the tool in any way. These nonconsumptive demands must be captured in this process. • The demand gap is only measured at the tap, and the supply gap is only measured at the source. The tool assumes no system loss, but this is not true. The system loss is large in some cases and this gap is not reflected in the tool. • As cities become more sophisticated in creating reuse infrastructure, there are unanticipated consequences for all the various downstream users of the water. For example: by increasing reuse to meet the demand gap, we negatively impact agricultural uses down valley and negatively impact endangered species/environmental "demands" at the state line. • We should plan for high demands in all cases and turn "on" all toggles for demands.
• Instead of accepting/reacting to demand, we should view water demand as manageable. So, what are the realities of demand management? • Everybody must contribute to the solution. Demand management has to be a shared activity statewide.

Demands
Moderator Name: Barbara Biggs
Note-taker Name: Craig Godbout
Additional Table Members: Terry Book, Michael Fink, Bahman Hatami, Bob Streeter, Keivn McBribe, Chritine Crouse

What are the two most critical aspects of your conversation?
1. Better data on projected water demands of energy development and associated with population increases.
2. Regardless of Low/Medium/High demand, in all likelihood none of the demand scenarios are adequate to capture non-concumptive needs and the opportunity to allow concurrent use

Discussion Question: Discuss the range of and the difference basis in the reasoning of other roundtables in developing their portfolio for a particular scenario
Notes:
Drivers – urban growth, oil shale development
Oil shale development and associated water rights acquisitions in Arkansas Basin
In Yampa, oil shale and senior water right decrees?
Don't know how much oil and natural gas development will occur
Will oil and natural gas development drive an increase in population and demand?
Update on energy development to determine projected water demand
Are there any estimates of water demand for related water infrastructure? – From mineral/energy development?
High demand scenario is so significant that it should be included
Get energy concerns involved in roundtable/portfolio planning process
Get government agencies (state and federal) involved with mineral/energy industry to participate in roundtable/portfolio planning
Demands must include non-consumptive needs
Arkansas cooperative arrangement to provide recreational flows (storage allows this to occur)
Discussion Question: For each scenario what are the major commonalities/common interests between differing portfolio elements? How about differences?
Notes:
South Platte Roundtable high demand due to state's demographic projections and location of population growth
Supply is variable so low supply scenario for extended period of time
High supply and conservation is for others, not enough supply to meet high demands
Task force to study Flaming Gorge Pump Back ($150K grant request, CWCB awarded $75K)
No one wants to see rivers dried up
Recovery of Yield = storage
Any new storage projects problematic
Flow regimes for rafting, fishing, environment to some degree incompatible
Use Joint Operating Plan on Poudre River as a model
Modify to accommodate reduced flows (Windy Gap and State Div Wildlife review as an example)
South Platte restoration projects to make better use of available water

Above could be a method to meet recreational and environmental needs
Fountain Creek mill levy
Willing to play small ball
Discussion Question: Does what you've learned confirmed your roundtables portfolio or do you think you need to make changes? If so, what changes?
Notes:

- Higher conservation in South Platte
- Need for South Platte Basin to increase conservation
- Governor should bring oil and natural gas concerns to the table

If oil and natural gas concerns want roundtable to plan for their needs they need to be involved
Energy/water needs not addressing increased growth and concomitant water needs
Use existing coal studies to determine population multipliers
Has anyone examined the price increase in cost/af due to hydro-fracing?

Demands
Moderator Name: Dick Wolfe
Note-taker name: David Harper
Additional Table Members: Brian Werner, Ren Martin, Betty Konarski, Tom Hatton, Kent Swedlund

What are the two most critical aspects of your conversation?

A. More statewide discussion on conservation to know where everyone stands and why
B. The potential impact of oil shale development drastically changes demand scenarios. Are the projections real, and should they be separated from the rest of the demand conversation?

Discussion Questions
Effects of oil shale development

- Of particular concern in Yampa/White
- New technology changes water intensiveness
- Are projected use amounts valid?
- Water reduction may be a result of kicking energy demands across the border to Utah
- Uncertainty of whether or not something will come online vis-à-vis oil shale determines viability of water development
- Can M&I demands and potential oil shale demands be married, or should they be separated from each other

To what extent was portfolio discussions at Roundtable influenced by demand analysis?

- Yampa/White: Variables involved make assessing where specific demand will come from difficult
- Gunnison: Skepticism over reports colored everything. Studies were taken with a grain of salt. Basin is finally willing to consider trans-basin diversions to protect ag
- BK-You should plan for high demand in development because after storage is built, the water is saleable regardless of demand
- All: Storage is the answer, storage is in the future.
- Need to bring projects to the Feds after everyone is on board at the local level
- Fiscal requirements-How are we going to fund projects?
- Investment $$ go to ag land because it is a safe bet, whereas other options are not
- Regulatory changes are necessary to incentivize development

Changing perspectives about demand

- Conservation is still being talked about on too small of a scale. Need more comprehensive strategies
- Conservation is driven more by rising prices than public awareness.

Demands
Moderator Name: Nicole Rowan
Note-taker Name: Matt Brown
Additional Table Members: Diane Johnson, John Hendrick, Jill Locantore, Phyllis Thomas, Ken Ransford, Tom Schreiner

What are the two most critical aspects of your conversation?

- Add more specificity and transparency to development of municipal demand sectors (e.g., more detail on residential versus commercial demand basis).
- Plan for low demand first as absolute need for short term and medium/high demands for longer term planning.

Discussion Question: Demand #1
Discuss the range [of demand] and the different basis in the reasoning of other roundtables in developing their portfolio for a particular scenario.
Notes:
We have to focus on low demands first as absolute need, then med/high demands for long-term planning.
Need more understanding of oil shale needs, what scale (low, med, high).
Need to keep in mind local versus statewide viewpoints.
Want to see one more column on table showing GPCD. Driven by conservation, one of the reasons people say portfolio tool is opaque.
Need GPCD to differentiate between muni and non-muni uses. Need more definition to GPCD, "shortfall in the numbers using…"
Have to keep in mind resort town changes in population (seasonal).
SUMMARY -- Plan for low demand first **as an absolute need, then sequentially medium, then high.**

Discussion Question: Demand #2
For each scenario, what are the major commonalities / common interests between differing portfolio elements? How about differences?
Notes:
What is the future of Ag needs (increasing/decreasing)?
Does future Ag include charging cropping patterns?
Ag increases due to climate change must be considered. We must have "market-based" solutions; farmers make choice on cropping patters, etc.
A lot of decisions are finance, tax, money driven (economics). What lands grow the best crops?
Preserve market-based solutions (value of land vs. value of water).
What policy/legislature decisions must be made to facilitate market-based solutions?
Let commodity prices drive value of land/ag needs.
West slope wants to preserve Ag more because they have less. Impressed with ranges. CWCB should provide more guidance on what parts of huge range should be analyzed (supply/demand). What is a reasonable range? Hard to make rational decisions around state if starting point is different around the state.
Population increases on Front Range must consider what demands are (e.g., blue grass vs. xeriscaping).
Large range variability.

Consider multi-family dwelling uses.
Not reasonable to take existing dwellings and demand changes in lawn/toilets. New housing easier to do that. Conservation to be focused on new muni development.
Long-term planning/uses can be directed by state policies.
Market-based covers all uses (M & I, Ag, Rec., Env).
What are the specific infrastructure needs to make this happen?
Somewhat skeptical on Conservation BMPs. Kind of "fluffy". Education is needed by long term.
SUMMARY – Preserve market-based solutions but temper it with local/state policy making.

Discussion Question: Demand #3
Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?
Notes:
What does each individual basin need that each other basin can add value and help collaboratively?
Re-emphasize need to talk in terms of GPCD so discussions can then talk about bases of numbers.
Discuss differential between highly variable domestic needs. Need to drill down into details (disaggregation).
QA/QC of numbers to ensure they're correct and ID drivers. Agree with above Hendrick comment.
When looking at details, it's not that simple. How do you measure commonalities across different industries?
Agreed.

Discussion Question: Demand #4
What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?
Notes:
Emphasize need to disaggregate/more specificity in domestic uses and what is really driving the numbers.
More transparency in how numbers are developed.
Determine how policies help.
SUMMARY – More specificity/transparency in developing numbers.

Demands
Moderator: John McClow
Notetaker: Perry Cabot
Table Members: Jim Hall, Scott Hummer, John Carron, T.Wright Dickinson, Andy Colosimo

SUMMARY:
1. Instead of just accepting and reacting, we should view water demand as manageable. So, what are the realities of "demand management"?
2. Everybody must contribute to the solution. Demand manaagement has to be shared activity statewide

DISCUSSION
Described portfolio tool. Medium seemed to be the norm for most basins.
On the West Slope, the question is, "How do we respond to prevent ag dryup?"
Should we be looking at all dryups? If we can't make a living, as a an agriculturalist, then our water is for sale. Basic economics. The reason ag has resisted regulating the transfer of water, is because ... At the same time, if agriculture wants to be part of this partnership, then how do you accomplish some of these objecives. Is there a way to change pre capita demand for water? We need a paradigm shift, so far as what kind of water ag will need?
If we are going to surrender our lifestyle to maintain your lifestyle, then we need to have some shared sacrifices. How much are we willing to trade off to maintain
Active versue passive conservation - how does this affect the demand scenarios?
The perception of "demand" is in the eye of the beholder. I constantly remind newcomers to Summit County that they live in a water-short environment. Demand is about educating a new populous ... that they are now in a new place unlike where they originated.
Everyone: Demand scenarios are a balance between regulation and education
Are we looking big enough in terms of the solution to our problem? Does that mean that what we ought to be having a conversation about, is whether our solutions are commensurate with oru future
There is a psychological value of making curtailments shared ... it was a Weld County Commissioner that stated that their agriculture is more valuable
The education component is huge, to build up the appreciation of water. Urban conversations should mimic rural conversations about the importance of water.
Should we be foucsing on demand differently? How do we manage demand, rather than an assumption of just keeping up?

Demands
Moderator Name: Jeff Devere
Note-taker Name: Frank Kugel

What are the two most critical aspects of your conversation?

- Oil shale demands have been overstated. New studies show 100 KAF.
- Projections assuming that water will limit growth are unrealistic.

Discussion Question:
- Range of demands

Notes:
Project planning: Ask a variety of questions
- Get consensus
- Does not have any value
- Oil shale is not as big a user of water as some think
- Solar power should be constrained to use min water
- Growth rate on Front Range may not be sustained

Demand projection is difficult to accurately assess:
- The way we project will not happen
- Must be able to react to change
- Front Range is well ahead of West Slope on conservation
- Ag use provides quality of life

Conservation is a common element
- Uncertain as to degree

Growth rate not as great on West Slope
- Ag preservation is important in GBRT statewide
- GBRT has visited other RTs; better understanding
- Efficiency is better term than conservation

Move people where water (not an option)
Water cost not a factor on growth

Discussion Question:
Commonalities
Notes:
IPPs
- Difficult to assess success rate for other basins
- Large affects skew rate
- More prevalent on the Front Range
- Should focus more on IPP; before new supply
- Planning process needs to start early; be streamlined
- More rigorous appraisal of projects available

- Two Forks being built one gravel pit at a time
- $42 million spent for no project
- Economies of scale

Alt to ag transfers

- Cities leading way

Discussion Question:
Are the portfolios adequate to develop a successful plan?
Notes:

- 0 – 1 million AF is example of hurdles involved in planning
- Legislative approach not desirable
- Cannot count on Federal funds
- Problem taking into account uncertainties of climate change
- M4 scenario different to assemble into consensus with other runs

Discussion Question:
Hot Bottom Items
Notes:

- oil shale demands overstated
- new studies show lower usage (100 KAF)
- reevaluate demand projections
- be prepared to better react to change
- projections that water will limit development are not realistic
- water will not limit growth

Part 1.4: Identified Projects & Processes

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Identified Project and Processes (IPPs)
• Permitting is a common issue on all IPPs. The State can and must be helpful in addressing the permitting issues (federal and state), so that the process to move IPPs toward the 80% goal is successful. This is not to suggest elimination of local control. • As part of the discussion of IPPs, we must get the Portfolio Tool to more clearly and quantitatively identify impacts to nonconsumptive uses as it does for uses such as agriculture. IPPs must be looked at with regard to how well they are implemented relative to all issues because they will inevitably affect the success of future IPPs.
• 80% overall is too high. In the IPP analysis, we need more granularity. Some types of IPPs are easier and less contentious (e.g., WISE and Prairie Waters). Others are more difficult (such as transbasin diversions). • It is important that IPPs move forward considering all interests. We need to consider both projects and processes; some IPPs require a new way of doing things (e.g., land use planning as IPPs). The State has an important role in challenging the status quo.

• It is important to promote water education to help demonstrate the need for and cost of successful IPPs. This has two components:
  ○ Educating the public in a way that they are invested and not "glazed over"
  ○ Water planners and land use planners educating each other to create a better connection between growth and water planning
• It is important to recognize the interconnectedness between IPPs and other elements (i.e., IPP success means some continued agricultural transfer).

• State-level strategic vision/direction is needed:
  ○ Governor-level support of multi-beneficial projects that prioritize benefits/needs
  ○ Development of a statewide water plan
• We need to facilitation of funding for IPPs.

• It is a complex problem. There is not one approach that can provide the solution. We need to consider that IPPs have an important role. We need to have the roundtables (RTs) look at IPPs again to see what is really feasible in terms of IPPs that can reduce the gap. We should favor multi-use projects. • We need to get away from the position of "it is my turf." We are all stakeholders in the state; we need to work together on IPPs that benefit all. We need to encourage partnerships to accomplish IPPs. We should streamline the process; we have to have the "hard" conversation before/outside of the permitting process.
• We need to build partnerships to prioritize and implement multipurpose IPPs. The next step will be a prioritization with an emphasis of projects that can meet both consumptive and nonconsumptive needs as well as multiple beneficiaries, and encourage a collaborative process and leadership to champion and prioritize projects, including funds to facilitate conversation. Example: Plaza project in Rio Grande. • We need to bring Federal agencies to the table to facilitate IPP permitting where applicable. There is a need to address additional layers of regulatory and political hurdles including encouraging State agencies to talk to themselves and to Federal agencies. The State is working on a pre-mitigation process with the Feds to help projects move forward. However, Washington is still disconnected on western water issues and this can impact project movement. It is also important to let the Feds know where the Governor's support exists.

IPPs
Moderator: Travis Smith
Note taker: Suzanne Sellers
Table members: Carla Brown, Chris Sturm, CWCB Eric Anglund, Little Thompson Water District Polly Hays, USFS Roger Kilgore, Kilgore Consulting

Polly indicated that IPPs came out of the original supply plus some new supply project id over the last 7 years.
Some IPPs are completed or almost completed such as the WISE project. Needs were identified and IPP were meant to meet those needs and the WSRA used to help facilitate these projects. Focus on new project over O&M. Goal is for Basins to examine their IPPs and focus on implementing projects that meet the objective of meeting the States overall water needs.

1) Discuss the range of IPPs and the different basis in the reasoning of other roundtables in developing their portfolio for a particular scenario.

Most roundtables agree that 80% success is a good measure. Rio Grande's hot topic is not M&I conservation where other roundtables it is a very hot topic. Most at table are not on roundtables.
Was there an analysis to ensure that providers or basins were not relying on same water sources? Yes more will come regarding the new water supply and on non consumptive projects at the staff level. Reality checks will be valuable.
Success of IPP will influence agriculture and environmental values.
2) For each scenario what are the major commonalities / common interests between differing portfolio elements? How about differences?
3) Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes? No changes necessary by State.
Questions
How real is the 80% for IPPs? Do they have sponsors?
Need to build relationships and trust.
4) What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?
BUILD PARTNERSHIPS TO PRIORITIZE AND IMPLEMENT MULTIPURPOSE IPPS-Next step will be a prioritization with an emphasis of projects that can meet both consumptive and nonconsumptive needs as well as multiple beneficiaries. Encourage a collaborative process and leadership to champion and prioritize projects, including funds to facilitate conversation. Example: Plaza project in Rio Grande.
BRING FEDS TO TABLE TO FACILITATE IPP PERMITING WHERE APPLICABLE- Address additional layers of regulatory and political hurdles including encouraging state agencies to talk to themselves and Federal agencies. State is working on a pre-mitigation process with the Feds to help projects move forward. However, Washington is still disconnected on western water issues and this can impact project movement. Also letting Feds know where Governor's support exists.

IPPs
Moderator: Eric Wilkinson
Notetaker: John Sanderson
Participants: Eric Wilkinson, South Platte BRT, IBCC, Northern Water

Bob Rice, Reclamation in Loveland; what is the role of the feds. What is role of the federal government? In charge of water rights and contracts. Eastern Colorado area office. Fry-Ark and C, Tinidad; Bonny;
Meg White, The Nature Conservancy
Bill Warmack, Applegate, water supply development, acquisition, working collaboratively, wants to understand potential impact on clients.
Lindsay George, Applegate, water infrastructure side; on West Slope. Also involved in hydropower.
John Sanderson, The Nature Conservancy
Jay Skinner, 20 years, with CPW; runs water resources program. He or staff is liaison with all BRTs. Projects should be multi-use in nature. Help folks not suffer from "mitigation by ambush."
Casey Davenhill, watershed coordinator for Cherry Creek stewardship partners.

Notes:
State law is that Wildlife Commission has to approve mitigation plan.
Questions 1:
South Platte has deferred IPP success rate to BRTs, rather than pre-determining for other BRTs. Success of IPPs is critical to state. ___: liked what he heard from Shimmin that IPPs have an ag-dry-up component, so do we really want ag-dry-up. CPW is very supportive of irrigated ag. Model is formulated so that default is any leftover 'gap'. 80% of south platte IPPs have as a component of ag dry up, and every BRT has some IPPs that have at least some component of ag dry up. ___ pointed out that first, Portfolio Tool (PT) tells us almost nothing about NC impacts; second, IPPs have NC impacts by both retiming flows, consuming water, and pulling diversion points upstream; ___ thinks 80% is very high because of permitting, funding. (% success is a yield number; but you can also turn individual IPPs on and off); ___ points out that easy decisions have been made; problem with history is that regulatory and funding environment was different. Windy Gap was always seen as having two phases. It was already understood that individual entities would build there own storage. Rice example may be that CBT project was going to yield 310k AF, it now yields less. Another point: some of the IPPs use the same source. Also, there is only so much ag. Is 80% at all plausible? ___ opinion is that 80% is not possible. South Platte and Arkansas will be less. How does this relate to Table #2? That's the question. Transbasin probably extremely optimistic. In basin firming has best chance of success. In-basin firming is easiest; in-basin projects next easiest; transbasin success probably too optimistic. Priority waters was highly success.

Question 2:
IPP success is high across the board. Ag transfers vary greatly across portfolios; in SW and YW and going to meet all muni need by building on irrigated lands. (Note: 100% success rates for transbasin in SW and YW should say 'n/a' rather than 100%).
1.4-1.7 on re-use is capability of bringing it in the first time. Some of the plans for pipelines coming from north to . Can utuilies come together to expand exitin facilities.

There has been a lot of success around success ratio numbers. SP tired to go project by project. As it was said on the panel, how are you going to look across the table and say "your IPP isn't going to make it". Is there a disconnect between BRTs and proponents of IPPs? I sense good cooperation between BRTs and entities.
___ what is intersection between water quality and water quantity. ___ We haven't talked about it here.
___ we've talked a lot about 'projects', less about 'processes'. Incentives work only to a certain point, but at some point you need regulation.

Question 4:
Two Critical issues we want to come out of this roundtable discussion we are having?

1) 80% overall success rate of IPPs is too high. In IPP analysis, there needs to be more granularity, i.e., it is worth looking at characteristics of IPP that make them easier, more acceptable, etc. WISE and Prairie waters have broad acceptance; new transbasin diversions are very contentious.
2) Important that IPPs move forward, but in a manner that considers all interests at stake. Need to consider projects and processes. Some IPPs require a new way of doing things (e.g., land use planning as an IPP); the state has an important role to challenge the status quo.

IPPs
Moderator: Rebecca Mitchell
Notetaker: Kirk Russell

Notes:
Basin hesitant to speak about other basins IPP
Competition for same water across basins
Value of cross basin
Lessons learned from other basins (partnership)
transparency is important
DSS fact sheet
we need big solutions not little IPPs
is there a big project solution to bring small IPPs
RueterHess partnership (off permit after the fact)
Flamming Gorge project initial studies
if state can let DOT issue bonds (why not – bond/build it and they will come)
small is more bang for the buck. NEPA makes this real
restriction related to not having a "one basin" source
how do we balance IPP and Non Consumptive
FlamG task force
combining land use and water planning – it will give ability to fit development
Dry Gulch – bring on as many NonCons people to the table
Entering the age of cooperation – how do we get more certainty in early stages
risk of bringing interested parties too expensive
who is the lead agency of state to lead the charge? Reb-DNR
who has the water rights and who has the money
what is the sweet spot. define what the community vision (what is Pagosa!)
state is not the driver, state is to listen
who is going to pay for the improvements
DNR should be the leader
State statue – Fish and Wildlife mitigation fund
too long enjoying good cheep water
conservation is the
Are the discussions at the table reflective of the basin. Suggestions to change the conversations
don't like the term mitigation (its splitting the resource)
seeing changes to fully consumptive water

How to change the conversation?
who is there to lead the charge????? Governor, IBCC Director?

take back to Basin recognize how much conservation how much has occurred, get credit for current conservation effort

Regional Projects needed (consolidate small IPPs)

Recognizing priorities
Use efficiently
Still Ag gap in Gunnison
Who is going to drive the project
Funding and reducing costs
adding stakeholders to the project early
paying for projects – think beyond today
adding environ stakeholders to the discussion
trust is key for success
perseverance projects take advocates
Utah has statewide water plan
Must have advocate for water
avoid piecemeal
multi-purpose not mitigation
education

strategic vision (state advacate)
prioritize benifits

IPPs
Moderator Name: Greg Johnson
Note-taker Name: Karen Kwon
Additional Table Members: Jean Townsend; Brandon Peterson; Zach Margolis; Sean Cronin; Melissa MacDonald; Courtney Brand

What are the two most critical aspects of your conversation?
a. Education about the need for and obstacles to completing the IPPS. This may not be useful as a simple lecture, but more as an element in discussing water throughout the state. Also, education about the need to coopdinate water planning with land use planning.
b. The group emphasized the need to recognize the interconnectedness of each project. You can't look at a project in a vacuum because it has impacts that are widespread.

Discussion Question:
Discuss the range of IPPS and the different basis in the reasoning of other roundables in development their portfolio for a particular scenario?
Notes:
1) The group discussed whether the success rate for the range of portfolios is realistic.
a. Factors that go into determining the success of IPP are political, financing, permitting, etc. Will be important to get cooperative and buy in from all. Would be helpful to identify how to deal with "hold outs" Also recognized the disconnect between Land Use planning and water planning. Will be important to address these factors to shore up the time and financing it takes to successfully complete a project.
Comments made on roundtable estimates of success are as follows:
The CR Roundtable increased the success rate to test it to see what effects would be and also because wanted to be optimistic as a result of the Global Settlement. Overall question whether the IPP tool with estimated success rates is a negotiating tool, a way to state a position, or prescriptive in understanding the edges. Compact Compliance Pool – alternative is Blue Mesa Ark/Gunnison Study –
Others stayed clear of assessing success of individual projects, on ground of "who are we" to say whose projects would and would not be successful.
The group recognizes that the state needs to get 65% of projects to be implemented or we are in trouble.

Discussion Question: What are the major commonalities /interests between the differing portfolio elements ? How about differences?
Notes:
Not a lot of differences. Comments made on roundtable estimates of success are as follows:
The CR Roundtable increased the success rate to test it to see what effects would be and also because wanted to be optimistic as a result of the Global Settlement. Overall question whether the IPP tool with estimated success rates is a negotiating tool, a way to state a position, or prescriptive in understanding the edges. Compact Compliance Pool – alternative is Blue Mesa Ark/Gunnison Study –
Others stayed clear of assessing success of individual projects, on ground of "who are we" to say whose projects would and would not be successful.
The North Platte RT turned off all agg transfers to send a message.
The group recognizes that the state needs to get 65% of projects to be implemented or we are in trouble.

IPPs
Moderator: Alan Hamel
Note Taker: Jeff Baessler
Participants: Tamby – Eagle River Watershed Council; Terry Scanga – Upper Ark; Rachel Richards – County Commissioner; Ken Huson – City of Longmont; Ian – Grad Student

Table Questions:
1) Discuss the range of [your table topic] and the different basis in the reasoning of other roundtables in developing their portfolio for a particular scenario

- IPPs major element – private water providers will continue to advance and there will be hurdles. Colorado River – some will go forward but maybe not at same yield. 80% Ratio was more subjective.
- South Platte similar thought that ratio may be a little optimistic. On South Platte they think it is a little different. What is going to happen north of Denver to the state line and most IPPs in that area are larger projects – ie NISP, Windy gap in permitting process with a ways to go. If you get 100% projects successful, then maybe only 80% of yield is successful. If 80% successful, then maybe yield only 60%. Give and take process will reduce yield when moving projects forward. Thought 80% doable, but not as confident in South Platte Basin. Some IPPS are urbanization of irrigated lands which are likely to be successful.
- Our IPPS – one leg missing is storage and delivery. 80% reasonable – alternative ag transfers to move forward you will need storage to move forward. Enlargement of Pueblo and Southern Delivery System essential to meeting gap. 86% may be low… confident that they will reach the goal.
- how much interaction does South Platte have with Metro? Most interaction with IBCC representatives.

2) For each scenario what are the major commonalities / common interests between differing portfolio elements? How about differences?

- What do IPPS have in common – ie permitting? Seems like roundtable need to set success ration, but what are the common things. Permitting is the largest item in Terry's opinion along with cost. Rachel the real difference is a difference in the type of IPPs. Colorado more rehabilitation of older facilities. Most IPPS they see are coming from other areas and how they will affect the Colorado. Water development and Growth is real, but magnitude is different. IPPs – How they are done is important. If done in wrong way – if for example upper Colorado mitigation doesn't work, then that effects future projects and their success. Also what? Is conservation really being done and has it moved us into the future.
- must look at IPP difference between basins. Colorado looking at new diversions whereas Arkansas is already over-appropriated. Trying to look at using existing rights more efficiently. Alan – if we do good environmental stewardship then future projects will be more successful.

3) Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

- Encouraged at Arkansas assessment that they believe they will be 80% successful. Important to Ag and west slope that the identified IPPS are successful. IPPs between basins are really important.

- Tool must be more flexible.

4) What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?
1. Permitting is a common issue on all IPPs. The State can and must be helpful in addressing the permitting issues (Federal and State permitting) so that the process to move IPPs toward the 80% goal is successful. This is not to suggest elimination of local control.
2. As part of the discussion of IPPs, we must get portfolio tool to more clearly quantitatively identify impacts to non-consumptive use as it does consumptive uses – eg: Agriculture uses. IPPs must be addressed with regard to how well they are implemented with regard to all issues because they will inevitably affect the success ratio of future IPPs. In other words, what we are saying we need to do our IPPs in a balanced way to demonstrate that we can do other projects well in the future. All IPPs are interconnected in this way – if you can provide a quantitative analysis of all needs then we will be more successful if addressing the gap.
Still have a way to go on educating with regard to conservation and non-consumptive needs.

IPPs
Moderator Name: Steve VanDiver, Rio Grande
Note-taker Name: Tom Acre - Metro
Additional Table Members: Carl Trick – North Platte, David Graft- State Parks and DOW, Peter Mueller - Southwest, Tisch Lian – West Slope, Tricsh Flood – Consultant, Jenny Bishiop – Colo Springs Utilities

What are the two most critical aspects of your conversation?

1) It is a complex Problem – There is not one approach that can provide the solution. Need to consider that IPPs have an important role. We need to have roundtables go back and look at IPPs again. What is feasible to help reduce the gap? Favor multi-use IPPs.
2) Neet to get away from position of "It is my turf". We are all stakeholders in the state – work together on IPPs that benefit all. Need to encourage partnerships to accomplish IPPs. Streamline process – have the hard conversation early/before permiting process (outside of permitting process).

Discussion Question: Discuss the range of IPPs and the different basis in the reasoning of other roundtables in developing their portfolios for a particular scenario.
Notes:

- North Platte was one of first trans-basin diversions
- Are we looking at specific IPPs or how roundtable applied percent of success rate?
- Talk about both, since there are a lot of projects on drawing board and some that are being implemented.

We should look at how basin considered projects and how relative to west/east slope needs.

- SDS Project – helps to maximize water rights, adds duplication to system, assist with super ditch if it happens, has taken 20-25 years to accomplish.
- Some are old projects – opportunity to implement, New projects need to look at other benefits. Where is Federal participation – i.e. permitting.
- Another layer of IPP is Federal layer for permits and effort it takes to make changes
- IBCC has ask rountables to narrow wish list to what is reality. Some IPPs are in permitting process that need help – would help fill the gap.
- Roundtables have a lot of diversity and knowledge level that have complicated the roundtable – IBCC process. Challenge to get realistic ideas from members that recognize issues.
- Rio Grand reservoir exists but used by one ditch company, need to have it used for other purposes, more flexible storage. Need funding to rehabilitate ditch, willing to if can get help. Roundtable has to help educate how this will benefit more than one entity. Example of project ready to go, but needs permit process to move forward. Partnership development is way to get to where need is.
- What about Public-Private partnership? Water law makes it difficult.
- It is a water right issue or storage issue. Private property right. What to do with the water?

Discussion Question: For each scenario what are the major commonalities/common interests between differing portfolio elements? How about the differences?

Notes:

- Portfolio – Ag is responsive to change to either conserve or western slope diversion. Is there really anything to work with? Is there really agreement on the issue?
- Hard to use hard numbers, need to start looking at implementation of some concept for each option. Is the number important since it portrays accountability, should we look at incentive approach?
- Need to work on all approaches, focus on all not just one. West slope – conservation – theory to require on east slope when cannot do themselves.
- Conservation – can not just rely on it to fill gap or drought. Need flexibility. Need to look at what else (Storage) can be part of a solution. Need some flexibility in water rights system. Need Ag and M&I to work together on conservation, results –need storage to have a benefit for the system. Solution is complex.
- Not one element – need incremental use of all approaches not one answer.
- Conservation – how do we approach without attack – environmental: need more information.
- Need to get away from reluctance to accept need to open up solutions – to discuss issue before it becomes a crisis to force conservation.

Part 1.5: New Supply

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

New Supply
• Moving forward will require a full discussion of risk management and the incorporation of future flexibility and adaptive management, as well as all voices at the table. • Moving forward, we must recognize the interconnectedness of new supply with IPP success, conservation implementation, and agricultural transfers.
• The discussion of new supply requires discussion of risk management and a more thorough economic analysis than is currently available in the Portfolio Tool. • We should explore smaller projects for incremental supply instead of really large projects that are economically infeasible at this time.
• We should maximize our entitlement on the Colorado River, but not limit new supply sources to the Colorado alone. • Implementing project to develop water on the Colorado in stages to appease multiple interests and obligations
• Compact call potential makes all West Slope watersheds at risk if new Colorado River supplies are developed, regardless of diversion points. • There is general agreement that there is Colorado River water available and some is needed to meet the East Slope gap. The issue is not Issues "if," but rather "how, when, and where."
• Conservation shared commonalities with new supply: we need to move from planning to action to prevent the window of opportunity from closing. • Uncertainty inside and outside of the Portfolio Tool means that risk management and adaptive management need to be discussed and addressed.
• Economic feasibility is the driver; we need to explore who bears the financial costs and what the existing opportunities are (e.g., storage). • Interconnectedness requires us to look at implementing risk management triggers.
• Basins should try to harmonize their consistency with assumptions made for portfolios scenarios. • The success of Identified Projects and Processes (IPPs) should be evaluated based on their ability to address the gap (i.e., affect the new supply discussion).

New Supply
Moderator Name: Mike Preston
Note-taker: Tom Browning
Table Members: Geoff Blakeslee, Jim Broderick, Chris Treese, Tim Murrell, Cary Dennison, Ken Spann, Jamie Prochno

Range/Basis for roundtable portfolios

- Extreme (book ends) help define what might happen for scenarios – demonstrate what could happen
- Concern for Ag; esp. low supply
- Shape perspective for new supply – alt. ag transfers
- Should be same water supply, but how do you decide how much?

#1 Conservation Discussion

- Careful not to say where new supply comes from and conservation would not solve everything.
- Left oil shale on the table (up to 30k af for production), would reduce supply of Colorado River.
- #4 scenario has zero to East Slope. Potentially serious impacts for ag, goal to preserve statewide.
- Risk management (Trampe memo); concern for compact call.
- Come to grips with high and low amounts that impact compact.
- Risk analysis study still underway.
- Portfolio tool is at 30,000 levels.
- Show the extremes, help everybody understand.
- To solve problems look at statewide perspective.
- Middle of the road for new supply (300,000 AF).
- If you help one sector you may harm another.
- How do IPPs meet goals?
- Play "small ball" rather than home run (Arkansas went to 2030).
    - Using all the tools (no silver bullet)
    - Stay away from extremes
    - Looked at with and without oil shale
- You need storage no matter what!
- Didn't look at how to help all other basins (they can do their own)
- Storage is not new supply; Colorado River is
- Firming storage; where is it? Blue Mesa?
- Define what you need for gap, then where do you put it?
- Colorado basin recognizes that new supply come from Colorado River
- Legal and physical availability of water; moving water over significant distance; pumping not gravity.
- Incumbent on west slope BRTs to look at it realistically

#2 Commonalities

- No single method solves the problem (no silver bullet)
- Similar approaches; small changes don't work that well

- Statewide perspective; we all have responsibilities
- Commonly agreed that ag dry-up is concern statewide
- Success rates for IPPs are varied but fairly high (optimistic)
- IPP success is uncertain and rides on a handful of projects (some basins not all)
- Non consumptive gap has not been defined (or addressed)

#2 Differences

- Perceived abilities to meet different conservation levels.
- Questions about piggy backing on existing conservation successes
- Not using same terminology (factor of safety, storage, climate change, etc)
- What percent of conservation gets applied to gap
- Conservation needs work
- Oil and gas some yes and some no (not well understood across the board)

 # 3 Confirm portfolios and or changes needed?

- Arkansas will have to look again based on summit
- Individual portfolios or instruction to basins, but need to harmonize statewide for better understanding
- Need to re-run with consistent assumptions
- Yampa/White look at things again too
- What other basins have done and impacts
- IPPs are limiting our thinking, could be locking us into those solutions

#4 ??

- Basins should try to harmonize their consistancy with assumptions made for the portfolio scenarios
- The success of IPPs should be evaluated for their ability to address the gap (affects new supply discussion)

New Supply
Moderator Name: Jennifer Gimbel
Note-taker Name: Kristin Maharg
Additional Table Members: Tom MacDougall; Ken Spann; Phyllis Phillips; Jeris Danielson; Becky Long; Brad Udall

What are the two most critical aspects of your conversation?
Economic feasibility is the driver – what are the financial costs and existing opportunities in storage
Need to look at implementing risk management triggers for larger context

Discussion Question: #1
Notes:
___ defined the table topic for discussion purposes
New supply = Colorado River water development for West Slope or TB diversions
Is it the Colorado River system within CO? Or does it include Flaming Gorge as well. Yes it does.
Opinion of conservation community: Range of availability starts at zero so should we hedge our bets at that number to manage risks? In-basin projects would be more cost effective for WS use and then pursue other strategies for East Slope. The range could be negative in certain years. Look at vulnerability factors.
Gunnison will only support new supply with appropriate RM -- everyone agrees this is critical. Series of triggers that curtail junior rights plus there should be limitations on NW on how it's used (i.e. balance ag and urban, low dry-up)
What legislative/constitutional action is needed to limit appropriating available water?
We have multiple basins from which to manage potential shortage on Colorado River
Others feel that NS is more financially feasible than conservation and reuse but only large scale projects
Does NS necessarily mean storage (i.e. Blue Mesa)
Who owns the NW? Is it the state? And who pays? Ag cannot afford it.
Cross-basin interconnection of ag economies. Challenge is to incentivize changes in irrigation practices to preserve ag while moving water to other uses. Infrastructure improvements needed.

Discussion Question: #2
Notes:
Looks like portfolios are coalescing around 150-200K range for new supply
Strong local beliefs exist on protecting basin of origin's interests at the expense of others but willing to at least look at different options without putting anyone at too much risk – share it based on economic drivers plus ecological integrity, make informed decisions on what IS the risk
Discussion Question: #3
Notes:
What conditions can we live with?
What are the triggers that push water use/development past the tipping point?
Re-evaluate price of water and food delivery, economic feasibility and opportunity is the driver of NS
Storage is important but first look at existing infrastructure
Can't consider NS without larger context of protection measures (i.e. buffers/triggers)
Rigorous and preventive public education on Front Range needed to understand financial costs

New Supply
Moderator Name: Peter Nichols
Note-taker Name: Nicole Seltzer
Additional Table Members: Jennifer Bock, Mark Pifher, David Beaujohn, Bruce Whitehead

What are the two most critical aspects of your conversation?
Moving forward with implementation of new supply projects will require adaptive and risk management, flexibility and having everyone at the table
Moving forward with implementation of new supply projects will require recognition of the interconnectedness of new supply with IPPs, conservation and ag transfers

Discussion Question: Range of New Supply and basis of reasoning for portfolios
Notes:
___ discussed Metro BRT's approach to new supply. They did not want to decide how much would come from agriculture versus new trans-basin diversions, so divided it equally. So, if you want to increase new t-b diversions, then it increases ag transfers and vice versa.
___ asked why they applied so little from conservation. ___ responded that since passive conservation is already built in, and active conservation is difficult to implement and uncertain to sustain, there was reluctance to do anything but hold these savings in reserve. Perhaps as time passes and those savings become more "firm" they could be applied to new development, but not now. ___ noted that it seems to comes down to values: other brt's value protection of ag lands, while the Metro brt values certainty of supply. ___ responded that the Southwest brt wants to preserve ag lands, and this is why they were willing to look at aggressive conservation and some new supply development. In order to develop new t-b diversions, conservation should be utilized more heavily. ___ noted that it isn't that Metro rbt didn't want to conserve, just that this water is not applied to the gap.
___ asked if there was no new water to develop in the South Platte basin. ___ said that no, if there is any significant new development it will come from the Colorado basin (i.e. Flaming Gorge, Green Mtg or Gunnison).
___ worries that an 80% IPP rate is overly optimistic. ___ agrees, and if that rate goes down, then ag dry up increases. The table all agreed that all "legs of the stool" are interconnected and you cannot play with one without impacts the others.
___ noted that new supply seems to be the fallback due to the desire to protect ag, but there are consequences here as well. We need to know the environmental impacts of each scenario before the picture is complete. What is the environmental impact of new supply at 80k versus 220k? Mark agrees with this, and said that the risk management discussion is imperative. How do you create a portfolio of new development that could have embedded triggers that protect both compact allocations and environmental values? This approach may alleviate concerns somewhat. ___ noted that you also have to be aware of the risk of underdeveloping the Colorado River supplies because that impacts front range agriculture.
___ said that it is unfair to cut off new supplies for the front range, while leaving substantial resources for the west slope to develop. Both need to have the ability to utilize what is left.
___ noted that flexibility seems to be very important to everyone. We do not want to lock people into a rigid system and should encourage adaptive management going forward. Infrastructure will be needed, but smaller dispersed systems are preferred by the environmental community. ___ noted that cost

efficiencies go down when you do smaller dispersed projects, so if that is important then someone has to take that into account and compensate for it.

Discussion Question: Common themes/differences
Notes:
___ noted that there is an inherent trade-off between new supply and agriculture. Since there is a desire to protect ag, then new supply is necessary. ___ noted that utilities need the ability to change their planning scenarios over time, such as like Aurora currently considering decreasing per capita rates in future supply planning. ___ agreed that data collection and information processing and sharing is very important for everyone.
___ reminded the group that while we are trying to develop a scenario for 2050, the world does not stop then. We need to preserve opportunities for the future if we do not pursue one option now.
___ said that one commonality is that both east and west slopes seem to have made concession that they all need additional water supplies for the future. ___ agrees, and said that conservation should be a big part of the equation, even if the front range is hesitant to go there.
___ noted that minimizing new supply development is a commonality among the west slope.
___ thinks its important that we not get wrapped around the axle on a specific number. We should move forward with the best possible plans and see how far we get. The market will tell you if you need to continue to develop new supplies later. ___ wonders how you then plan for new supplies, because its takes decades. Do we put a placeholder on a certain amount for future development, and then focus on conservation now? ___ thinks that building triggers into future demand scenarios to change your decision-making pathways would be useful. If we do nothing on new supply now, then we lose the option to protect environmental and agricultural values later because utilities will go out and do their own planning. But we couldn't even get the toilet legislation passed with broad support due to fear of new regulations. It will take a statewide social commitment to move the bar on conservation from passive to active so we can protect our ag and env values.
___ asked if there is a way to allow a permit to build something, but then delay building it until it is clearly needed. ___ doesn't see how this is possible because permitting agencies like BOR, EPA or USACE have legal and political restrictions that prevent them from encumbering a future administration. A larger project can be $50m to permit—how do you sell this concept to rate payers that you will shell out a large sum of money for something that may or may not be needed? ___ noted that a state sponsored project that included many uses would have less of a hurdle and could be one possible solution.
___ noted that it will take a statewide commitment. Conservation often needs an emergency like a drought to be successful, but as soon as one community lifts restrictions, others follow. There needs to be a commitment from all water providers to apply a basic level of restrictions and pricing that will allow for us all to work together.
___ noted that projects that include non-consumptive values have an easier time being built. ___ agrees, but is unsure how this can be done with a large reservoir project.

New Supply
Moderator Name: Bill Trampe
Note-taker Name: Michelle Garrison
Additional Table Members: Stan Cazier; Dan Birch; Melinda Kassen

What are the two most critical aspects of your conversation?
Cannot do Portfolio analysis without Risk Management analysis and Economic analysis.
Explore smaller, incremental supplies instead of large projects.

Discussion Question: Our table had no representatives from the Front Range water tables, and 2 IBCC reps, so they admitted the conversation would have been different with more people at the table. They chose to discuss New Supply in terms of Risk Management and other issues. There was much discussion on ag dryup. They did not directly address the question on Portfolios.
Notes:
Discussion of the ag dryup and the market drivers:
The market is the largest threat to ag water. Would like to see something more like the Murray-Darling basin in Australia with their incredibly low per capita consumption of water.
Unfortunately, at this point, buying up ag is cheaper than projects like Million's, so no one will pay for these other options or projects. They will just continue to buy up ag.
People are missing the important food-water nexus and therefore ag water is still priced too cheaply and its real value is not recognized.
Even here this morning, most of the food served at the breakfast buffet was imported (melons and other fruit all from S. America, etc)
The U.S. imports much more food now than people realize.
Discussion of New Supply projects:
What is the next INCREMENT we should be studying? Instead of swinging for the fences, what increment makes sense to do next?
Flaming Gorge Project seems too big and unrealistic. Something smaller would make more sense.
A small Fryingpan-Ruedi pumpback project might make sense. That basin is concerned about high flows in the river and some water is available.
The focus has been on the large-scale projects and so we do not have enough good information on these smaller-scale projects.
Cannot do Portfolio analysis without Risk Management Analysis and Economic analysis.
Talking about New Supply requires much more discussion about Cost than the Portfolio Tool currently offers.
Need realistic Economic discussions.
Ag Transfer part is tied to the idea of not swinging for the fence. Think that eventually the food supply/food security issues will change society perception. Then the market and incremental supplies from ag will make much more sense.
If meat gets more expensive, though, the large-scale ag dominates instead of the small farms and ranches.

Discussion Question:
Notes:

If the Gunnison sage grouse is listed as Endangered and ranching becomes impossible because of the issues over use of Federal lands, then enough water becomes available from the Gunnison basin to pipe to the Front Range.
Tunnels are so expensive that smaller projects that require tunnels aren't economically feasible.
Feel that smaller incremental supplies to help with the East Slope Gap are more feasible.
Okay with Best Management Practices being put into place and allowing some time to see what happens.
New Supply is the last leg of the stool to meet gaps, partially due to the markets and partially due to urbanization of ag lands.
One large concern is that once the ag land is gone, it's gone permanently. What do you do to buy time before losing the land?
What happened in the Republican? Did they put land back into production when ethanol prices rose that had previously been fallowed in CRP? (Others – not really)
We need to provide incentives for Interruptible Supply plans instead of other options.
There is a necessary mass to those plans in terms of supporting infrastructure.
How do you get the cities to enter into Interruptible Supply agreements instead of buy and dry, which the cities are still doing for the certainty.
Only changes to the LAW will put any real limits on buy and dry or other loss of ag land.
Passive conservation will happen anyway, but how do you promote progress on active conservation?
Struggling with even a simple new toilet bill.
Need ag folks to speak up and clarify how important conservation is, and how not pushing conservation measures relates to future loss of ag land.
When ranchers in our basin tried to make some arguments about the value of ag land, the answer was "Why haven't you put in more protections for ag land? But many people don't want more regulation, so a catch-22 on the West Slope.
Cities want cheap water and farmers don't want to be prevented from selling/leasing and making their own decisions, but this leads to less protection of ag land. Ethanol boom temporary.

Notes:
New Supply possible projects
Explore incremental supplies, not large supplies. "Boutique TMD"
Headwaters don't have enough water to provide towards the Gap.
Larger projects lower in the basins get much more expensive.
Pure Wolcott project rather than Wolcott/Green Mountain pumpback?
No, don't flatline the Blue River. Would pure Wolcott project have less effect?
Homestake II-style project?
In wilderness area; thought that was completely off the table.
Should loss of ag land be part of Risk Management? Risk to State Economy? Overdevelopment of Colorado River? Loss of South Platte ag?
Ag morphs based on conditions. Weld County was growing TURF to supply the new development in the area.
Temporary ag transfers of row crops are very different than of hay/grass.
Fruit not fallowable.
Fallowing/water banking is very different on West Slope (especially hay/grass) than on East Slope row crops

Deficit Irrigation questions
Global warming will increase Consumptive Use of crops, West Slope needs to consider that
Bureau of Reclamation Study and its focus
Water banking in the Upper Basin will be about hay meadows, which is very different from Arizona row crops
If you deficit irrigate hay/grass crops, you will change the timing of streamflows and lose late season return flows, which could raise environmental concerns

Notes:
Options suggested for Reclamation's Basin Study include some that are outrageous. Quick list of options:
Icebergs from Alaska, importing Mississippi River water, floating photovoltaic cells on Lakes Powell and Mead to generate power and decrease evaporation, land management changes to reduce dust-on-snow deposition, silicon covers on Lakes Powell and Mead that would allow rain in but would not allow evaporation out, vegetation cover, water banking, desalination plants in southern California (but believe Southern California would still want their full Colorado River water supply because it's the cheapest and easiest to deliver, and they would drop other supplies or use the desalination plants to increase supplies)
Conservation is low-hanging fruit but it will require regulation.
Clearly we need solutions soon. Requests for regulation or legislation need to be well thought out. Need to develop support early in the process. Need to be politically savvy to garner right support at right time.
Even the Gunnison Basin struggled with this issue. They wanted Conservation in their Portfolio, but didn't want any extra regulation on small Western Slope communities.
Clarification of proposed Toilet Bill: required lower flow toilets in new construction, and upon sale of existing property

QUESTION FROM TABLE DISCUSSION ABOUT BACKGROUND MATERIALS SUPPLIED FOR THE SUMMIT:
The costs seem incorrect. Why are the prices of ag transfers so high compared to the other options? If the cost of ag transfers was currently truly the same or significantly more than New Supply, ag dryup wouldn't be the default water supply for new growth.

PART TWO: TABLE DISCUSSIONS ON IMPLMENTATION

Discussion Session

During this session, table groups were organized by specific topic areas, which discussed a series of topic-focused questions, specifically regarding implementation of the roundtable portfolios. The topic-specific discussion questions and key discussion points from each table group are outlined below.

Table Topics

2.1. Nonconsumptive
2.2. Risk Management
2.3. Storage
2.4. Agricultural Transfers
2.5. Conservation and Reuse
2.6. New Supply

Discussion Questions: Nonconsumptive

1. Using the decision tree diagram, how do you think basins can best plan to protect the
2. nonconsumptive areas they each identified as most important in their NCNA?
3. What challenges do roundtables face to implement nonconsumptive IPPs consistent with the priority basins and reaches identified in their NCNA in the near term? What help do the roundtables need overcome these challenges?
4. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Questions: Risk Management

1. What other Risk Management tools should be explored?
2. Would including risk management strategies change your roundtable's portfolios? If so, how?

Discussion Questions: Storage

1. Will storage be necessary to implement your portfolio? What types of storage do you think will be most successful in the future and should be evaluated? What barriers need to be overcome to implement storage projects in Colorado?
2. Does your basin have enough storage to implement the different parts of the portfolio(s)?
3. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Questions: Agricultural Transfers

1. For each basin, how many irrigated acres do you think could be made practically available in a rotational fallowing, interruptible supply agreement or other alternative transfer program to help fill the M&I Gap (as opposed to drought supply)? What issues with these methods should be addressed.
2. How do we incentivize ATMs and pay for the added infrastructure, storage, and advanced water quality treatment that may be required?

3. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Questions: Conservation and Reuse

1. Referring to the conservation table, what conservation practices should be moved forward across the range of portfolios?
2. Beyond the work of the water providers, what work can the roundtables do to support implementing conservation?
3. What types of monitoring can be put in place to determine progress toward achieving conservation levels?
4. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Questions: New Supply

1. How can Colorado River Water be used to address the 2050 Demands from SWSI? These demands are - west slope demands, oil shale, Front Range demands, nonconsumptive needs, increased agriculture in the Yampa Basin, increased power generation, etc.
2. Given the competing future demands for Colorado River Water, what additional activities need to take place to better analyze how we should all use Colorado River Water to meet those demands? (E.g., planning, analysis, engineering, costing, identification and understanding of issues that need to be addressed, stakeholder discussions, studying compensatory storage for a transbasin project, comparative project evaluation, etc.)
3. What do we do now and what do we preserve for the future?
4. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Part 2.1: Nonconsumptive

Discussion Questions: Nonconsumptive

1. Using the decision tree diagram, how do you think basins can best plan to protect the
2. nonconsumptive areas they each identified as most important in their NCNA?
3. What challenges do roundtables face to implement nonconsumptive IPPs consistent with the priority basins and reaches identified in their NCNA in the near term? What help do the roundtables need overcome these challenges?
4. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Nonconsumptive
• The federal government is a complex component in nonconsumptive use and it is hard to control. • There is a lack of legislation and flexibility with nonconsumptive uses. Entities that have water rights should be able to divert water from the stream without going through the State instream flow process.
• It is difficult to identify nonconsumptive project "applicants." There are not always project sponsors identified to put these nonconsumptive sort of projects forward. Who "owns" the problem is not obvious. "Everyone's problem equals no one's problem." • We must better quantify the environmental and recreational impacts at the same level of detail as consumptive project impacts on agriculture. • We need to better quantify environmental tipping points with any given project whether IPP, agriculture, or nonconsumptive. • Adapting management should be a component of nonconsumptive projects.
• Nonconsumptive metrics need to be included into the Portfolio Tool in a serious and meaningful way. • Need quantification of nonconsumptive uses is critical. • The decision tree should be modified to add additional actions. • Nonconsumptive uses have downstream benefits.
• Large transbasin projects should not be approved without meeting quantified and satisfied nonconsumptive components. • We need to quantify nonconsumptive impacts with good science and economic data and analysis. • There is a need for a minimum set of credible nonconsumptive needs and impacts of given change/project. • There is a need for uniformity in criteria.
• We need uniformity in nonconsumptive needs identification, quantification, and prioritization. • We need basin-specific economic value data for nonconsumptive uses and to establish linkages to quality of life and local economic bases.
• We need to quantify nonconsumptive needs to ensure adequate consideration of nonconsumptive needs in the Portfolio Tool.

• There are two challenges:
  o Finding sufficient funding sources for nonconsumptive projects
  o Limited resources available for (nongovernmental organizations (NGOs) to compete for WSRA grants.
• The State should simplify WSRA application and provide more staff support.

• CWCB needs to listen more:
  o More field time is needed.
  o We need to learn what the local priorities are.
  o We need to spend more time with local water users.
  o We should become partners rather than adversaries.
• We cannot get nonconsumptive projects without proponents.
  o We need to get information out to local users to generate interest.
  o Quality of projects is as important as quantity.
• We need greater parity between nonconsumptive and consumptive portfolios and projects.
• Nonconsumptive proponents cannot get a seat at the table (roundtable and otherwise).

• The decision tree is "customizable" and should be used as such, with diverse users in the region, areas, etc. • The Instream Flow Program is quite mature. It can act as a CWCB "champion" for nonconsumptive needs to better liaise between government entities and sustain their efforts.
• We need to recognize commonalities between agriculture and environments in order to keep agriculture in business and emphasize conservation in cities. • Rather than focus on infrastructure to meet nonconsumptive needs, we need to creatively address needs with existing infrastructure. Do not be afraid of changing how we do things.
• We need to raise the status and importance of nonconsumptive needs to the level of municipal needs and agriculture. We could request that RTs use the tree to identify IPP/opportunities and barriers for focus areas. • More nonconsumptive local leadership is needed, as are funding mechanisms and legal mandates on water providers to protect nonconsumptive needs.
• The roundtable process has built trust and dialogue across consumptive and nonconsumptive communities. It is time to take that message and the shared priorities to other users and stakeholders. • Roundtables can reevaluate their IPPs based on multi-purpose principles and criteria in order to increase support and success of future projects.
• The nonconsumptive needs assessments should move in a direction parallel to "the gap." Funding is more likely when a problem is quantified. • We should recognize the commonalities between agriculture and the environment; we should emphasize conservation in cities. • Rather than focus on infrastructure to meet nonconsumptive needs, we should creatively address needs with existing infrastructure. We should not be afraid of changing how we do things.

Nonconsumptive
Geoff Blakesley – Moderator
Jeff Baessler – note taker
Table Members: Seatta Moss; Paul Robertson ; Peter Mueler; Zach Mar; Laura Belanger; Ken Newbecker; Paul Fanning

1) Using the decision tree diagram, how do you think basins can best plan to protect the nonconsumptive areas they each identified as most important in their NCNA?

- Flow is critical element for non-consumptive.
- Some high priority needs cannot be addressed using the diagram. These would be non-based flow items. Will need to stretch definitions of solutions in blue box.
- Helpful in identifying focal areas which basin roundtables have not necessarily done, in addition quantification tools such as Flow evaluation Tool. Have not done last two bullets.
- possible action to address issues in valley may not be addressed in the tree. Agreements and Policy mechanisms may address some of the problems. For example, policy changes may be needed in the valley with regard to new ground water rules.
- Volume and availability to an ecosystem… a water availability problem. Maybe there needs to be tweaking of diagram such as more definition of what "Flow" means in the diagram. For example water availability could be exchanged for the term Flow in the diagram.
- Either using or not using the decision tree diagram may address how to protect the areas. The method may not be adequately addressed in the diagram.
- Flow quantification is critical for ecosystems and the best way to protect attributes. This is the key issue. Minimum flows can not maintain an ecosystem. Need to determine how much flow is necessary is the key. Risk assessment is the result from the model. Various risk levels are expressed as ranges of flows for specific attributes.
- Diagram does not necessarily address all situations. Also, projects alone may not solve all the problems.
- ___ would like a site specific study box on the diagram. But this could be prohibitively expensive.

2) What challenges do roundtables face to implement nonconsumptive IPPs consistent with the priority basins and reaches identified in their NCNA in the near term? What help do the roundtables need overcome these challenges?

- A lot of environmental and Rec projects do not necessarily address the high priority nonconsumptive needs. The challenge is to get the roundtable to focus on the attributes. Problem is to address political pressure to put money in areas where they may not be needed.
- Problem or concern that non-consumptive be tied to a consumptive project.
- Inherent preference for consumptive projects. Need to identify non-consumptive gap in terms of quantifiable needs.
- Hard to get funding to rotect flows that may be lost. Need to let non-consumptive use go first.
- Cultural - some water users do not see need for environmental uses. What are we losing must be identified. Don't treat everything and think that there is an engineering solution. Biology is a lot more complicated.

3) Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

- Portfolio tool does not have a means to address non-consumptive needs. Non-consumptive needs must be included or elevated to same status of consumptive needs.
- No application to non-consumptive needs.

4) What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

- Inclusion with metrics of non-consumptive needs into the portfolio tool in a serious and meaningful way.
- Need quantification of non-consumptive uses
- Decision tree should be modified to add additional actions.
- Non consumptive uses have downstream benefits.

Nonconsumptive
Moderator Name: Rebecca Mitchell
Note-taker Name: Kaylea White
Additional Table Members: Meg White (TNC), Bahman Hatami (CPW), Scott Hummer (CWT), Jean Townsend (Economic Consultant), David Nickum (TU)

What are the two most critical aspects of your conversation?

1) Raise the status of Non-Consumptive Needs to the level of importance of municipal and agricultural needs. Request that roundtables evaluate focus areas and develop IPPs; idenfity opportunties and challenges in implementation of IPPs for nonconsumptive uses.
2) Need non-consumptive local leadership; could use some funding mechanisms and perhps legal mandates.

Discussion Question: (all discussed together)
Using the decision tree diagram, how do you think basins can best plan to protect the non-consumptive areas they each identified as most important in their NCNA?
Notes:
(Issues understanding and using the decision tree and flow chart: starting place should be at the top; a 90 degree clockwise rotation would help)
(using the flow chart)

1) Is the reach in good condition?
    a. Yes, it's good, so need to protect it.
    b. Are there existing protections in place?
    c. Is the protection good enough? Longevity, re-assessments scheduled
2) Recreation language is not included in the chart
    a. Aesthetics, wildlife viewing, rafting, fishing, etc.
    b. Environment – minimum flows most of the time; Recreation – sometimes maximum flows; the needs are different.
3) Recognition of meeting non-consumptive needs within a delivery system
4) How effective are the procedures in place, such as the ISF program? Junior water rights covering only 1/3 of water ways.
5) Metrics are very important (Jacob's note – this merits a separate conversation)

Discussion Question:
What challenges do roundtables face to implement non-consumptive IPPs; what help do roundtables need overcome these challenges?
Notes:

1) Barriers to getting projects through:
    a. Funding mechanisms
    b. Priority has been low compared to consumptive needs. Priority should be raised.
    c. Need METRICS before we can market (get buy-in, support, laws, etc.)
    d. Has not been a focal point – should be opportunistic to incorporate non-consumptive needs within consumptive use projects

e. Concern over who will administer funds? Lead projects? At a local level? Government, or local water providers via legal requirements?

f. Water court process in changes of water rights has many opportunities on hold.
g. Geography and water quality
h. Constituents are not generally at the basin round tables.

Discussion Question:

What challenges do roundtables face to implement non-consumptive IPPs; what help do roundtables need overcome these challenges?

Notes:

1) Barriers to getting projects through:
    a. Funding mechanisms
    b. Priority has been low compared to consumptive needs. Priority should be raised.
    c. Need METRICS before we can market (get buy-in, support, laws, etc.)
    d. Has not been a focal point – should be opportunistic to incorporate non-consumptive needs within consumptive use projects
    e. Concern over who will administer funds? Lead projects? At a local level? Government, or local water providers via legal requirements?
    f. Water court process in changes of water rights has many opportunities on hold.
    g. Geography and water quality
    h. Constituents are not generally at the basin round tables.

Nonconsumptive
Moderator Name: Nicole Rowan
Note-taker Name: Reagan Waskom
Additional Table Members: Tom Schreiner, Barbara Vasquez, John Weiner, and Val Valentine

Discussion Question:

1. How basins best plan to predict nonconsumptive areas.

Notes:

- Need consistent data and criteria for NC needs
- Need better flow data and flow needs quantification
    - Encourage 2 paths
    - Diagram does not provide a blueprint – it provides a starting point. Process is not linear.

Discussion Question:

2. Challenges Roundtables face in implementation

Notes:

- RT approaches to NC not consistent across basins
- Cumulative impacts
- Connectivity of habitat
- Continuity over time
- Context of habitat – what are other drivers
- Lack of quantification
- Need to educate BRT members about value of NC – need to listen and learn
- Need to prioritize NC needs/areas
    - Uniformity in NC needs/areas identification/quantification/prioritization
        - CO Parks & Wildlife and BLM -- should have a formal seat at the table in NC discussion and perhaps a vote.
    - Basin specific economic value of NC uses
    - Linkages between quality of life, NC needs, and local economics

Discussion Question:

3. Confirm Roundtable's portfolios or need changes

Notes:

- No; yes
- NC needs process is not useful in evaluating basin portfolios. Outcomes disconnected from NC inputs.
- Need flow needs quantification in order to have complete portfolio analysis.

Discussion Question:

4. Critical aspects

Notes:

- No large transbasins projects approved without quantified and satisfied NC components
- Quantify impacts with good science and economic data and analysis
- Minimum set of credible NC needs and impacts of a given change/project.
- Need uniformity in criteria

Nonconsumptive
Moderator Name: April Montgomery
Note-taker Name: Arista Hickman
Additional Table Members: Jenny Bishop; Philo Shelton; Heather Dutton; Susan Smolnick

What are the two most critical aspects of your conversation?

a. The federal government adds complexity to nonconsumptive use. They enforce statues that have to be followed, but are not easy to control.
b. Entities who have water rights, but have a nonconsumptive use for those water rights for part of the stream reach, should be able to divert them downstream without going through the state instream flow process. There is a lack of legislation and flexibility with nonconsumptive use.

Discussion Question:
Using the decision tree diagram, how do you think basins can best plan to protect the nonconsumptive areas they each identified as most important in their NCNA?
Notes:
No one in the group has personally used the decision tree.
Is there a process for bringing forward nonconsumptive agreements?

- Intergovernmental Agreements (IGAs) for bringing forward water rights agreements for example for exchanges, agreements about flows and seasonal timing for utilities, diversions from a different point, but not as an actual decree?

Municipalities want instream flows through town, but Colorado Water Law makes it difficult for utilities to protect instream water.
Flow Management Programs:
Division Engineers can't guarantee that water will pass by headgates

- Risk of not being able to pick up water downstream – this is frustrating for utilities and there would need to be some sort of guarantees

Exchanges (water upstream) make instream flows too difficult
Instream flows possibly are not broad enough for communities because right now they are just focused on fish
Perhaps include additional tools to the decision tree, currently there may not be enough
Round table goal: how to get more prioritized projects on the table
Serious conservation may be needed for instream flows and vice versa – calculations on conservation and deliveries to wastewater treatment
San Miguel is looking for a win-win on diversions and not necessarily instream flow, but making sure that not too much is diverted
Can water remain in the river without being exchanged on?
Diversion Replacement Repair Programs in the Rio Grande started from talking to ditch companies needing help with diversions. Trust was a big part of the process. To benefit a larger population they expanded the project area 3 miles upstream and downstream. 35 stakeholders were involved in the process and only 3 were on the roundtable. The results: an automated head-gate, in kind and monetary contributions from stakeholders, wetland restoration, fish & boat passage, and stream bank restoration
Rio Grande Basin tries to include nonconsumptive use in all projects

Problem: getting all the right people at the table and including everyone in a large basin, gaining trust and making opinions coalesce. Not all the right people are at the roundtable level.
Arkansas Basin – agreements achieved but then the federal government steps in and says it's not within the scope of what the government had in mind.

Discussion Question:
What challenges do roundtables face to implement nonconsumptive IPPs consistent with the priority basins and reaches identified in their NCNA in the near term? What help do the roundtables need to overcome these challenges
Notes:
The roundtables don't have all the necessary stakeholders
The roundtables aren't looking at how new projects will impact nonconsumptive use and stream flows, the indirect impact is not always calculated
Yampa (Steamboat) put in a recite, water quality project with the county – low flows and low oxygen
Lacking a quality component in the decision tree
Quality is becoming more prevalent, previously there weren't any fines to make quality issues punishable
Rio Grande makes sure that projects have gone through the ringer before reaching the State, so they haven't witnessed any projects that impact nonconsumptive use
Southwest GIS mapping of natural values, but don't refer to map for comparison of new projects. This overlap is needed.
Looking into full evaluation tool
Yampa – still having tool refinements and reservations from people who want to divert
Are there enough nonconsumptive projects through the state water board supply reserve account?
Are there streambank restoration projects?
Water Supply Reserve Account – used by Rio Grande and Southwest
Southwest has a system of first in line, first served. There is no priority system based on the type of project – first come, first served.
Arkansas emphasis on cooperation for/with project approval, multiple uses and nonconsumptive project
Projects may be turned down based on **sheer size of basin**

Discussion Question:
Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?
Notes:
It's hard to assign nonconsumptive uses when the gap is not quantified: oil and gas demands, efficiencies improvement
Concern that transfer of water form West to East Slope will greatly impact nonconsumptive use and will also hurt water quality
The needs of fish and recreation in nonconsumptive are varying and any impact on nonconsumptive makes all nonconsumptive uses worry

Discussion Question:
What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

Notes:
Need to quantify what nonconsumptive use is
Idea that nonconsumptive use comes off the table to meet the gap
West Slope concern is having upstream storage for future M&I growth, high mountain reservoirs would be helpful
Is nonconsumptive use all about the environment?
Potential for storage would provide a buffer to release downstream when fish are stressed and help meet water needs of communities
Climate change adds another issue to the discussion
Multi-faceted sample projects may include storage to help instream flows
Federal government has an impact and large say on storage projects because of interstate compacts
Rio Grande: Terrace Reservoir had dam issues and was not able to store water. When the reservoir was fixed it will be able to store water to have instream flow
It would help to have the feds come together because they are disjointed with different directives: Bureau of Reclamation, Wildlife, etc.
Challenge of nonconsumptive is the federal government because have no control over the feds
Poudre is a wild and scenic designation and it has been a positive outcome of nonconsumptive use as an economic development tool for rafting, tubing, etc.
Specific federal issues include:

- Roadless rules
- Land and facilities within area
- Storage price and allotment
- Wild & Scenic is a federal water right, so there are restrictions to pull water that an entity has rights to
- Ag company permitting the use of water right on federal property
    - Limited access to land and arrangements with releases from other reservoirs and forest service

Super Ditch when making improvements to improve ditch, currently not a leasing mechanism for water rights, use or lose
Fish people and rafters trying to keep water instream that is already there
Enact water footprint credit similar to a carbon credit
Water rights accounting is very labor intensive and need to put return flows where they are owed
Our roundtable session group was mainly made up of utility representatives
Utilities have senior water rights and don't have to meet instream flows which is a junior water right – mainly for tourism
A healthy river looks the same to a fish, a farmer, and a duck
How do utilities deal with groups like "Save the Colorado" and "Save the Poudre"

Non-consumptive
Moderator: Jim Pokrandt
Note-taker: John Sanderson
Additional table members: John Rich, Kent Swedlund, Roger Kilgore, Mark Fuller, Jay Skinner, Jennifer Bock

This is a difficult topic. When talking NC needs, it's hard to talk about numbers. Non-consumptive is under-represented. On Colorado, we danced around quantifying.
___: Do we know what we need to know to implement? ___: There are probably specific and identifiable areas where needs are known pretty well. Arkansas is ahead of the state in terms of recognizing and protecting NC flows for rafting. In some areas we can reduce needs to numbers and timetables. It's often a site specific issue, which makes it hard to deal with. ___: Arkansas example is limited to a specific segment of a specific river; it is over-stating to say Arkansas has a good handle on NC needs; it is a little more than disturbing that there still seems to be a mindset that the environment will get whatever is left; we have a base level of protection in state's ISF program, but sill this whole process is very much focused on projects in a traditional way; BRTs and CWCB are still funding the same activities/same projects as has been done for the last 50 years; Consumptive approach was consistent across the state, but NC assessment was highly variable; a lot of the focus is on the gap; How is Fort Collins? ___: thinking about it all the time; once you get out of Poudre Canyon mouth, but not ready to go there; how about getting into channel it dries up into nothing; how do we get some water all the way through the system; struggle on Poudre is that it will take non-traditional ways; How do you converve water in a way where you can put it to river health (conserve to enhance); ___: why can't Fort Collins store water; in FC, it is remarkably difficult; return flows are very important; likes to environmental attributes; need to work with ag; can't be butting heads; ___: connection between agriculture and non-consumptive supplies is not adequate recognized in the Portfolio Tool. ___: in conservation this morning we talked about projects that are win/win. In Rio Grande we are looking at new infrastructure design, e.g., make headgates more fish friendly (___: but then beaver dams block fish ad water). ___: use of "non-consumptive areas", # of hunters, birdwatchers; is there a trend for more people getting involved in river rafting, fishing, etc. Return flows are really important for whole river systems in lower South Platte. ___: very few of the general public make the connection that winter baseflows are from return flows; ___: Ducks Unlimited work in N.P. and ducks take advantage of that; ___—we dry the water in 3-4 spots. ___: what has been limitation on quantification, is it science, ___: most of the BRTs said that "we went through needs assessment", but implementation was not spoken to. ___: are we happy with results in 15-mile reach? ___: keep going along with biological opinion; ___—traditional water right was sought in 15-mile reach, but a million objectives; ___: can call Recovery Program a successful non-consumptive project. Can we find other success stories? ___: how do you value non-consumptive needs? How do we value them highly? ___: Are NC values valued highly enough in this process? Group answer: it depends? ___: does the IBCC have a role to play in making NC needs be made more consistent across the state. Is there a way to integrate NC approaches across the state? Seems like the map is a map towards continue balkanization of NC uses. ___: Cities are the biggest losers . . . they get their green lawns, but they won't have local food and won't be able to see a river otter. ___: what about the New Supply piece? ___: it's not really an either/or; we have to figure out how to better work together. ___: understand better those projects where non-consumptive needs have been met, and ___: looking at the NC on the back end of projects is a poor way to go about it; how do we bring NC to the fore.

1) Using the decision tree diagram, how do you think basins can best plan to protect the nonconsumptive areas they each identified as most important in their NCNA?

___: In Colorado Basin, the recent agreement builds partnership and money. In Colorado, we think we can get to work. On Colorado, we think we can use this flowchart. Yes, we can imagine we can put the chart to work.

2) What challenges do roundtables face to implement nonconsumptive IPPs consistent with the priority basins and reaches identified in their NCNA in the near term? What help do the roundtables need overcome these challenges?

Numbers; science is not perfect; finding partners; money is not an issue; not all basin roundtables prioritized reaches. Emphasis on NC assessment was unevenly applied.

3) Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

4) What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

A) Two of the best non-consumptive projects we can pursue are: 1) Keep ag in business, 2) emphasize conservation in cities.

B) Among the best things we can do to meet NC needs is to use creativity and imagination to consider how existing infrastructure can be used to meet non-consumptive needs and don't be afraid of changing the way we do things.

Nonconsumptive
Moderator: Mike Preston
Note-taker: Perry Cabot
Members: David Graf, Ian Shelledy, Perry Cabot, Ken Huston

SUMMARY AND CRITICAL POINTS:
1. The decision-tree can be customized, as expected from a diverse set of users.
2. The NCNA should move towards a problem that is defined in parallel with the concept of "a gap." More likely to yield funding.
3. Have somebody in CWCB instream flow program act as a State Liaison. Instream flow program is mature now. Can act as CWCB champion for NC needs to better act as liaison between govt entities to direct NC water demands, project proponents, sustain their efforts.

DISCUSSION:
___: NCNA Decision Tree came up on South Platte RT. The question was: 1. What about the "good ones," such as stream reaches. 2. Where we have impairments, where you started to get red/yellow (Is there a problem?) - is it a matter of how we create flow?
___: The only way we were able to do anything was to bring together all the interest groups.
___: In the SW Basin, we have several sub-basins, so a diverse set of collaborators. Diverse stakeholders are preferred when deciding what the value of NCNAs are. The other thing, on the Dolores for example, we formed an implementation team to execute on some of these opportunities. First comes collaboration, then scientific-platform, then responsible parties must "bear down" and address the problem.
___: The Dolores example is good, because we are biting off incremental chunks (identifying what the resource is)
Metals Mining Presentation
If these are fairly complex, long-term challenges, you've got to get broad collaboration. You've got to be in it for hte long haul. When opportunities present themselves (big spill, etcl), then if you've though through how to maximize opportunities then you can act quickly. That builds confidence in problem-solving.
You have to know where the opportunities are, but depending on the scale of the problem, you may have to react differently.
___: Just to finish off #1, the Roundtable should monitor the progress. It's the reponsibility of Roundtables to address the problems.
___: When you have your NC committee, two things happen. Everyone is protective of their own sub-basin. Then, how do you get the rest of the roundtable, coming off the enthusiasm of the NC subcommittee, and build on that?
In almost all instances, you have collaborative requirements**.**

Nonconsumptive
Moderator Name: Melinda Kassen
Note-taker Name:Kevin Reidy
Additional Table Members: Michael Stiehl, Wendy McDermott, Gail Schwartz, Randy Fischer

What are the two most critical aspects of your conversation?

- CWCB needs to have more field time and listening
    - What are local priorities, spending more time with local water users
    - Become partners vs. adversaries
- Don't get to NC projects without proponents
    - Get information out to local providers to generate interest
    - Quality as important as quantity
- Greater parity in portfolios and projects (NC vs. Consumptive)
    - Proponetns can't get seat at table (parity)

Problem at basin , hard to get projects brought up as an idea. How to inspire people to think NC and think projects?
Not sure if project solicitation is happening
NC opportunities are discussed when consumptive projects are brought forward
How does SW Basin work within existing NC project framework?

- Working on fundamental education workshop focusing on flow eval. Tool
- Need to know which IPP's are ready to move forward

Issue around nutrients- need to protect flows in terms of water quality

- Opportunity to link quality and quantity and have basin-wide approach to nutrient issues. How to capitalize on quantity and quality?

Have quality issues in SW on Dolores and Animas. Don't know if water quality projects on list and if RT is looking at it.
Seen a lot of activity in Rio Grande along with discussion of Rio Grande reservoir that DOW releases are timed to benefit flows. Etc.
One issue with NC that the values that need to be protected need both water and clean water

- Shouldn't just be thinking about flows but clean flows
- Do RT's have criteria for quality as well as quantity?

Arkansas analyses project and prioritizes almost too well.
Does IPP's make it back to the map then go back to RT's? CwCb has information on basin by basin.
Minimum flows are controversial

- Arbitrary nature of min. flows is a problem
    - Ex: Fishery was there 20 years ago but no longer there
- Need more common sense; issue is polarizing if min. flows don't make sense

Illustrated various protections that may not be legal wilderness, repairing infrastructure to increase flows
Ark. Has seen that having fish in stream adds value to stream; in stream flows need to make sense
Need to get over perception that NC protection are based in reality; CWCB is problem since they impose in-stream flows on local areas; not as collaborative as it could be. "There is an adversarial relationship"
Bigger skepticism for feds. And federal water rights

- All sorts of different tools to sue
- Some tools can't be managed and run by local/counties

Concern about Fed. And State in-stream rights

- They are junior but if they want to change water right could open door for senior water right restriction
- ALP has provision in for NC needs.

To ensure NC values are protected:

- Obstacles : skepticism, not enough support
- What can CWCB help with:
    - Mapping information of what is/not protected
    - Greater parity with NC in portfolio tool; too much discussion on supply not enough other "legs"
    - Hydrologically thinks are changing
    - More field time and listening
        - What are local priorities; more time with local water user
        - Become partner not adversaries

Nonconsumptive
Moderator Name: Jim Yahn
Note-taker Name: Kristin Maharg

What are the two most critical aspects of your conversation?
Roundtable process has built trust and dialogue across C and NC community – it's time to take that message and priorities to other users and stakeholders
Roundtables can re-evaluate IPPs based on multi-purpose principles and criteria in order to increase support and succes of future projects

Discussion Question: #1
Notes:
Gunnison didn't provide a priority system or scale of importance; analysis process of Blue Mesa has had to result in NC values
Southwest didn't know either how to quantify; WFET hard to use but it is one methodology, hasn't gone to the full roundtable yet
South Platte has studied NC benefits of ag
Prioritization of NC projects needs to happen (funding is on first come first served) but first need to identify a problem vs. attributes – going at it the wrong way first
What happens when IPPs affect a proposed NC attribute? that's when the decision tree kicks in.
Discussion Question: #2
Notes:
Financial cost of impairment; value of assessment tools, internal education
How does a RT fund a NC project?
Southwest has an environmental funder on board, leading to the perception that they'll just steal the water post-restoration
Multi-use projects are critical – protect ag water, support M&I
List of projects that need letter of support, necessary for grant approval
Re-evaluate IPPs for multi-purpose with NC needs in mind
Consumptive use can't occur without NC attributes
At least we're talking about this! It has created a dialogue and awareness of NC uses as legitimate
All parties are now showing their hand (i.e. CPW has issues with fish)
How to negotiate with radical environmentalists?
Quantify project by project, but what are the criteria for projects/standards/guiding principles?
Communicate multi-purpose/NC & C relationship benefits of large supple solutions and educate stakeholders, build trust
How can RTs consider NC projects in other basins?

Nonconsumptive
Moderator: Linda Bassi
Note taker: Suzanne Sellers
Additional Table Members: Tom Browning, Melissa MacDonald, Bob Streeter, Doug Robotham, Karla Brown

1) Using the decision tree diagram, how do you think basins can best plan to protect the nonconsumptive areas they each identified as most important in their NCNA?

The South Platte already has high priority areas ID. There is some modification still needed. The roundtable is looking at high priority areas that have water needs. There is a need to find sponsors of nonconsumptive projects. It would be good to use this chart to go through all the projects systematically.
The Nature Conservancy (TNC) is using Interruptible Supply Agreements. TNC (Meg White) is currently going through the nonconsumptive project lists to pick out project for case studies.
Eagle River Conservation group has also ID projects and is not talking with the Colorado BRT.
Next steps: Some BRTs want to be done now instead of doing implementation, while others would like to keep going.

2) What challenges do roundtables face to implement nonconsumptive IPPs consistent with the priority basins and reaches identified in their NCNA in the near term? What help do the roundtables need overcome these challenges?

Challenges:
Environmental NGOs are usually volunteer organizations that are strapped for resources.
Sufficient funding sources are difficult to obtain.
Suggestion: Pairing with water supply IPPs to help nonconsumptive projects

3) Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Non-consumptive n demands have not been "quantified" making it difficult to use as part of the portfolio too.
Quantifying non-consumptive needs is site-specific and very complex.

4) What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

a) Quantify nonconsumptive needs to inform portfolio tool (See flip chart for exact agreed upon language)
b) Request to simplify the WSRA application (See flip chart for exact agreed upon language)

Nonconsumptive
Moderator Name: Chris Sturm
Note-taker Name: Caroline Bradford
Additional Table Members: Cindy Lair; Elise Bergsten; Rachael Richards

What are the two most critical aspects of your conversation?

- It is difficult to identify non consumptive project applicants. There aren't project sponsors identified to put these sorts of non-consumptive projects forward. Since it's everyone's problem--it's no one's problem. No one "owns" the NC problems.
- The "Tool" doesn't have any accurate means to quantify the environmental and recreational impacts of various projects at the same level of detail as the consumptive project impacts on agriculture. We MUST continue to refine the Tool to better quantify non-consumptive impacts. We need to be able to better quantify the TIPPING POINTS for environmental impacts with any given project, whether it is an IPP or AG or NC project.

Part of the evaluation criteria for grants and loans for consumptive projects should be how well they mitigate NC impacts. Multi-objective projects are important. All projects should have some sort of NC project components since they all have NC impacts.

Discussion Question: Table # 22
How can basins plan to protect non consumptive needs in their basins?
Notes:

- It is difficult to identify non consumptive project applicants. There aren't project sponsors identified to put these sorts of non-consumptive projects forward. Since it's everyone's problem; it's no one's problem. No one "owns" the problem.

The organizations with greater capacity (Water providers) do not see it as their charge to take on NC projects, but if left up to the nonprofit local watershed groups, they don't usually have the capacity/staff expertise/administrative or project management funding to take them on. Local municipalities could be project sponsors, but these are issues outside of their regular charge.

- The "Tool" doesn't have any accurate means to quantify the environmental and recreational impacts of various projects at the same level of detail as the consumptive project impacts on agriculture. We MUST continue to refine the Tool to better quantify non-consumptive impacts. We need to be able to better quantify the TIPPING POINTS for environmental impacts with any given project, whether it is an IPP or AG or NC project.

Adaptive management should be a function or a component of non-consumptive projects. We just don't have the information to determine if a non-consumptive need is being met. Future IPPs can continue to change environmental conditions. Non-consumptive challenges may be greater in basins where the water is being diverted out of the basin than in the receiving reaches, but there are still impacts on both sides. All aspects of the Tool impact all other features. Some "legs of the stool" may be cut off as an unintended consequence but we can't predict the impacts. How well consumptive IPP's are implemented can help or hinder new supply development.
Fountain Creek is an interesting example of a NC project with resources from mitigation. ($50M?) The issues for who had "ownership" of the problem were resolved when Colorado Springs Utilities took it on as a part of the permit.

Discussion Question:
IDENTIFYING NC PROJECTS
Notes:
It's hard to have (find) a non consumptive project that doesn't have strong links to consumptive project impacts. Non consumptive projects with links to stormwater infrastructure and water delivery channels…
The effect of future IPPs on the NC attributes are very unclear. It is hard to quantify them.
SUGGESTION: Escrow a portion of the funds for any consumptive project for the impacts to NC needs.
Tie money for consumptive projects to their impacts on both sides of the system (depleting and increasing stream reaches.)
Efficiency rules on the Ark could spread to South Platte.
Piping ditches has non-consumptive consequences.
The importance of local groups (NPOs, small districts, etc) cannot be underestimated when implementing non consumptive projects. The project sponsor, when grassroots driven, can be very efficient at leveraging assets and money. The state should help fund and facilitate the local administration of these efforts on a larger scale than just administering Healthy Rivers fund, or other small pots of money.

Discussion Question:
DISCUSSION OF VARIOUS FUNDING SOURCES TO HELP NC PROJECT GET FUNDED – OUTSIDE OF WSRA
(General discussion of lack of strong options for funding NC projects.)
Notes:
Adding beavers back into our ecosystem would make a lot of sense. How do we harness natural systems to 'nudge' the ecosystems back into balance? This can be very cost efficient, but most traditional project sponsors wouldn't take this sort of approach.

- Part of the evaluation criteria for grants and loans for consumptive projects should be how well they mitigate NC impacts. Multi-objective projects are important. All projects should have some sort of NC project components.
- Need funding for long-term adaptive management of projects so that post consumptive IPP Implementation is continued after "ribbon-cutting" and funding is on-going for adaptive management of non consumptive IPP's.

Part 2.2: Risk Management

Discussion Questions: Risk Management

1. What other Risk Management tools should be explored?
2. Would including risk management strategies change your roundtable's portfolios? If so, how?

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Risk Management
• We need to share the risk with the lower basin and consider what the incentive is for them to share it. • We need to develop a Compact management plan within the upper basin, between East and West Slopes to avoid a Compact call. (Live within our means in the upper and lower basins.)
• There is risk in doing too little. There is risk in doing too much. We need to assume an acceptable level of risk and plan for the consequences. • Hedging reduces risk; storage is hedging and is needed across the state.
• We need more modeling to include triggers and additional storage. • There is a need to cooperate with upper basin state for risk management strategies to include intentional surplus in Lake Powell and/or other locations in Colorado.
• Risk management as a methodology to address Colorado River Compact compliance should be broadened to include: water quality, conservation, landuse, growth, groundwater, climate change, and practices of other states. • We need to identify and quantify measurable triggers, metrics, and responses thereto that pressure the values we are trying to protect.
• Risk management is more than just management of the management of the Colorado River. We have to look at all the basins to protect existing rights while developing new supply. • There is a need to recognize that there is a rainbow of different risks and externalities. It is not just water.
• Risk management should definitely be included in the roundtable portfolios and is a prerequisite to allowing any additional development. • It is essential to have risk management strategies in place to identify the "sweet spot" of avoiding curtailment and not leaving water on the table for lower basin use.
• We do not support a do-nothing approach and have prior appropriation system work to manage risk. We must manage to avoid the possibility of curtailment. • We need to formalize a risk management strategy to avoid curtailment.
• We need to facilitate new storage development using support from the State level. • There is a need to define triggers to support proactive water management options in advance of administrative requirements.
• Storage is a key component to risk management for all needs and a thoughtful look at storage to benefit different needs is important. • Costs (current and future) and available funding, and understanding the future costs of delaying funding and action on risk management are important.
• The question about what else we should explore is premature because we do not fully understand existing capabilities (i.e., measuring and monitoring).

• Adding risk management would change the basin roundtable outcomes, but the Portfolio Tool is not the mechanism to explore all the elements that must be considered to inform decision making (i.e., cost).

• We should explore shared shortage agreements through a shared vision planning process. (Assisting with permitting and joint strategizing on mitigation.)
• We need to identify wet-water alternatives in advance to address potential Compact calls and other risks.
• Without robust and inclusive risk management strategies, there should not be any new depletive projects. Strategies could include:
  ○ Severe water conservation triggers
  ○ Ground water recharge
  ○ East Slope storage for protection against a Compact call

Risk Management
Moderator Name: Todd Doherty
Note-taker Name: Michelle Garrison
Additional Table Members: Ken Spann, Kevin Lusk, Becky Longm, Don Magnuson , Janet Bell Michael Fink, Tom McDougall

What are the two most critical aspects of your conversation?
Importance of Storage for the future
Importance of Funding for future projects

Discussion Question: 1. What other Risk Management tools should be explored?
Notes:
No risk tasks have been assigned to the roundtables, is that right?
Some roundtables have already tackled it. Bill Trampe's discussion of risk was key for the Gunnison Basin Roundtable.
The Gunnison Roundtable demanded that Risk Management be part of the portfolio for any water to East Slope to be considered.
And for question #2, Gunnison Basin Roundtable demanded Risk Management up front in building their portfolio, so it won't change the Gunnison's portfolio because it's already included.
We want the 75 MAF in 10 years to always be met, and there is currently 128 KAF of ag shortage in the Gunnison Basin.
Does the Gunnison Basin require water conservation for ag?
No.
Does the Gunnison Basin keep long-term records so you can track water use and economic production so that you can tie water use to your economy?
Does the irrigation method control the amount of water use (sprinkler vs. flood irrigation)?
In steep basins in the Gunnison, the runoff is used by others so it gets rediverted about 7 times.
We need to be tracking that type of data throughout the state to have good discussions on these topics.
Yes, getting that data is very important and hard work was required to get that data fairly consistent and reasonable throughout the state for the SWSI reports.
Metering is occurring in the Gunnison Basin, and on some systems it is now being metered for each user separately.
Back to Question 1…
We are still working on metrics to be able to quantify Environmental/Nonconsumptive Needs. We could in the future try to factor in the ideas of triggers or other Risk Management strategies on the environment and see how they fit together.
From a utility standpoint the risk management tools are drought monitoring and analysis of each particular system, its demands, its supply, and its storage capacity. There is no consistent implementation across different utilities, systems or users. A statewide drought plan is an important part of this.
In the future there will be issues about and a need for firming storage. Firm yield requires firming storage and in the future we may need both capture storage and firming storage projects. Location of the firming storage will be an issue – will it be on the West Slope, East Slope, a few strategic locations, etc.

Discussion Question: 1. What other Risk Management tools should be explored? – Discussion of Storage

Notes:

It is currently extremely difficult to permit, develop and build a storage project. It is definitely an impediment to address some of these issues for the future.

Colorado Springs Utilities system description:

Approximately 245 KAF of storage systemwide with typically just over 80 KAF demand.

Try to run the system 70 – 80% full with some carryover.

It is most helpful for delivery to have the supply sitting as close as possible to the end use to reduce risks like delivery issues, but recognize that a future project that might also benefit others could be located farther from the end uses.

While some in the environmental community don't want to see any new storage, others are considering when/where new storage would be most beneficial, especially expansion of existing systems since that may have the least negative impact. We do need storage and now there are some new ideas on the storage of conservation flows and some other innovations.

Looking at the functions of the CWCB Instream Flow Section, could see the benefits of small reservoirs in the headwaters.

Some environmental groups see benefits of that; others might not. There are definitely tradeoffs involved. More nimble storage with newer aspects may be more helpful.

There is some available storage close to uses: Reuter-Hess Reservoir. It provides some capacity to store some water from the Gunnison Basin or from Flaming Gorge Reservoir. Having a place to put the water is key.

Reuter-Hess Reservoir was proactive on the assumption that more land development would be approved than could be served by the existing water supply. The Denver Aquifer levels are dropping and its use as a source of water will diminish. Thought of as a drought backup source but perhaps that's not possible anymore because of so much use already.

Risk analysis always includes a flip side – the risk of NOT doing it also carries costs and those need to be considered as well.

These tools focus in-state mostly, but from a higher level, broader solutions between states might be helpful.

Consider:

- Replacing some of the deliveries with water from another supply
- Intentionally Created Storage (ICS)
- Augmentation

Discussion Question: 1. What other Risk Management tools should be explored?

Notes:

- Intentionally Created Storage (ICS) for Upper Basin?
- Overdelivery to Mexico beyond treaty amount: can the Upper Basin get credit in Lake Powell for that?

Storage is truly key. What did you mean by "nimble" storage?

"Nimble" storage refers to integrated infrastructure, sharing between communities, small-scale storage with sharing of facilities, rethinking storage and including conjunctive use, joint operation of systems, more flexible storage, etc.

Definition/Types of Storage: There are inventories of dam sites, restricted dams, possible reservoir sites, etc. that could be used to guide these discussions.
Also consider basin approach versus statewide approach.
The South Platte Basin Roundtable has looked at some of those and could reclaim some of the older ag storage sites. One of the big problems for the future is that the legislature has milked the CWCB funding to balance the current budget without considering the long-term impacts of the loss of that funding. The money issue is huge. We can talk about risk, but we need to be able to attach dollar values and get the legislature to understand the true costs associated with taking funds like Severance Tax and other water funding to balance today's budget. We need to be very clear that the future costs could be enormous because of shorting funding and not being able to start on needed projects now. Delays often mean extra expense.
Another huge problem is local land use decisions without consideration of water issues.
We need to look at triggers and the price tag for those triggers.
We need to tie future population, industry, land use decisions, economy, etc. to the water issues.
How do we do a comprehensive analysis of storage to produce the best benefits for most folks?
"Nimble" storage is NOT related to:

- Federal or State Government
- Permitting
- RICDs
- Instream Flow Rights

Discussion Question
Notes:
ALL of these things get in the way of being nimble with storage, of running exchanges to benefit others with your storage, sharing between systems, etc.
Water Banking also doesn't work well with all of these hindrances.
Nimbleness often arises when different entities MUST play together in the same sandbox and there is some urgency for the supply. Difficulties or emergencies can promote nimbleness. Regulation and limits do not.

Risk Management
Moderator Name: Jennifer Gimbel
Note-Taker Name: Caitlin Coleman
Additional Table Members: Mike Wageck, Doug Kemper, Terry Scanga, Mark Shively

- What else should we be thinking about
    - ___- Not just the Colorado River… the Ark Basin is looking at alt. ag transfers. Reduce transactional costs and prevent injury to other rights—water may not come out of the same field each year. Risk management.
    - ___- Should M&Is be giving something?
    - ___- Conservation as a buffer for risk management- river so low can't farm as a trigger to M&I users
        - Other users are entitled to water if they aren't involved in fallowing. If they aren't involved in fallowing, would the water be there?
- CO River—have we hit safeguards? Are there other Safeguards?
    - Colorado will develop. Our future depends on Wyoming not developing.
        - ___- isn't that the same as any other development?
        - ___- it's a little different because of the Compact. It's at our own risk that we depend on Wyoming NOT developing.
    - Under the Compact there's a formula to figure out how much NM and AZ are depending on CO being conservative.
    - ___- buy rights from junior/senior decrees—place in bank- no future curtailment
- Blue Mesa- Federally managed- have no demand. Should CO be getting storage in Blue Mesa to protect ourselves?—you have to do a NEPA analysis
    - Can contract on reservoirs- we could ask for water. Whatever is in storage reservoirs are to be used 1st… Navajo is all contracted out, Flaming Gorge is getting to be all contracted out
    - ___- storage is the answer. We need more small buckets for the future.
- How bad would the state let it get?
    - ___- it's going to take a combination of everything—see if it makes the West Slope comfortable.
    - When people conserve more that's your risk management buffer… we need a buffer. Don't cause problems, don't curtail entitlement
    - ___- storage is the answer
    - ___- we have buckets that could be better used—Chatfield- 10yrs. $10 million… other opportunities statewide?
- ___- Population growth, climate change. Storage on the West Slope… we need to change public perception towards doing a statewide project. Where's the leadership and funding? Intergenerational responsibility! If Colorado thought that a new Bronco's stadium was an important legacy to leave our grandchildren… how do we captivate the imagination? For the grandkids!
- ___- You're right. Have to convince the public that there is a future need… In the latest Rotarian Magazine an article about in New Delhi people would stand in line to get water, they couldn't go

to work because they had to stand in line. Eventually they elected to pay a tax and create a utility so they wouldn't have to wait in line at the pump and could go to work… people need to want to fund these projects. We have systems that are cheap and invisible!

- ___- 95% of Americans put water above everything else
- ___- is there an entity in place to do that campaign? To convince 51% of the population when we have a structural budget problem?
- ___—let's steal messaging from the Bay Delta push
- ___- is there a risk management strategy
- ___- Communicate the value of water
- ___- and crank up the bills
- ___- would people go there… where would they go… if they were told 'you don't have water'.
- Still have climate change and limited supply… burden is on all customers.
- ___- impost mandatory conservation?
- ___- Mandatory higher rates- price them out. See if they'll pay… if they will, keep raising the rates. We'll see population growth in Colorado even if the US population declines—it's a great place to live
- ___- is this the state's responsibility or water providers? Is it really statewide?
- ___- Like portfolios- basins would do it for their own basin but not state. The state is all connected.
- 2 Points:
    - Risk management is more than just management of CO River but we have to look at all the basins. The risk is to protect existing rights while developing new supply
    - Recognize that there's a rainbow of different risks and externalities. It's not just water.

Risk Management
Moderator Name: Travis Smith
Note-taker Name: Ray Alvarado

What are the two most critical aspects of your conversation? Commonalities and window of oppurtunity.
Compact Storage oppurtunities
Trigger approacheds to Risk Management, similar to Bill Trampes's paper

Discussion Question:
What other Risk Management tools should be explored?
Notes: The group listed study that can be used to help address Risk Management

- Compact Compliance Study
- CRWAS
- Basin Study (USBR)
- Water Bank work

Group talked about risk management as avoidance vs. dealing with curtailment
There is a need to know what our obligations on the Colorado River, some were unclear or unsure what they were.
Need to look at Bill Trampe's paper on Risk Management. That paper needs to be circulated.
Open question on "how do you approach Risk Management"?
Conditional rights and new water rights need to be curtailed first before impact to senior water rights.

Discussion Question: Does Risk Management change Portfolios.
Notes: South Platte – No, tradeoffs already looked at.
Metro – No
Colorado River – No, reliability becomes an issue
Gunnison – Not sure, maybe need to look at narrowing the range.

Risk Management
Gary Barber, Moderator
Michelle Pierce, Note Taker
Participants – Angie Fowler, Kelsea Macilroy, Bruce Whitehead, David Taussig, Tim Macklen, Jorge Figueroa, Mark Pifher, Karn Stiegelmeier.

Question 1. What other Risk Management tools should be explored?
Comments:
Are risk management tools limited to the Colorado River Compact only or do they include risks associated with supply or agriculture?
Risk management, in this discussion, is limited to the Colorado basin, including transmountain diversions.
Implies need for conservation at a high level.
What about land use? New taps are risky.
Water quality should be incorporated.
Should include alternative scenarios.
Should not limit Colorado's ability to develop full entitlement while meeting obligation to lower basin states. Would only certain uses be curtailed or will all uses be curtailed under prior appropriation doctrine?
Water bank concept will get out ahead of the threat. Must be done by the whole state.
Overdevelopment of groundwater in the Republican Basin is a consideration. Ag is a primary use – must look as sustainability. Need to get out ahead of the problem. What about leasing water to lower basin states?
How does climate and climate change affect risk management strategies?
Water supply planning based on a diverse portfolio that maximizes use and incorporates conservation, reuse, temporary leasing agreements and existing infrastructure (i.e. increasing reservoir capacity). Make portfolio adaptable to changing climate conditions.
Urban point of view. Should incorporate measurement metrics. Delivery triggers should be preceded by warnings. Storage levels should be a trigger.
Non consumptive needs – flow triggers should be incorporated on select, priority streams.
Conservation trigger. Before new supply is used, do you have to prove conservation?
Demand management and curtailment scenarios should be developed by the upper basin states and then implemented voluntarily prior to a compact call.
Risk Management tools pertain to the Colorado River but all other legs have risk too. Leases are risky – rights can be sold out from under you.
Should conserved water be reserved or applied to the gap?
Question 2. Would including risk management strategies change your roundtable's portfolios? If so, how?
Comments:
Puts us all in the same boat – groundwater, climate change, etc.
Colorado Basin wants high conservation but applies own conserved water to non-consumptive needs via conservation easements, which puts water in the river, which protects the State.
Number 1 priority is human survival. The approach of using triggers does allow some water development.
Likes trigger approach, but what is too much development?

Endangered Species Act is a trigger.
Compact is contrary to prior appropriation doctrine and does include some triggers. Do we need to carve out water for the future in spite of the prior appropriation system?
What about flow triggers, conservation triggers and triggers for municipal/industrial uses? Would municipalities lease back to ag?
Compliance is voluntary absent statutory provisions. Leasing contracts could cover shortfall. May have to rely completely on groundwater for a short period of time under compact curtailment.
Would drinking water be curtailed for junior users? Really?
Development of the full entitlement should be developed in basin of origen first.
There is a world view that wasting water is okay as long as it protects the water right.
Conserved water is held in reserve.
Demand can be controlled, supply cannot.
Conservation is a risk management tool.
Switch from resource development to demand management.
Question 3. What are the two most critical aspects of your conversation that you would like the CWCB, IBCC and other roundtable members to know?

1. If risk management is going to be used as a methodology, it should look broader to include water quality, conservation, land use, growth, groundwater, climate change and practices of other states.
2. Need to identify and quantify measurable metrics, triggers and responses thereto which preserve the values we are trying to protect.

Risk Management
Moderator: Bill Trampe
Note-taker: Ben Wade

Strong PT – Upper basin discussion, upper basin group?
Seen enough modeling to conclude CO cannot solve by itself, have upper basin help
requires CO to have its stuff together
conversation changed to how do we get out of the way of a freight train
keep from going over cliff; triggers established; market will take over; 4 legs of stool will take over
whole basin can participate for $$
Water banking – triggers = extra storage (2-3 years) and then curtailment of junior juniors (east and west)
sharing of pain
drought response city would have to cut back
drought response plan
pre compact folks need incentive to participate
transversion and compact curtailment = water in; ditch not available for ag/water bank; can't raise crop; go door to door and talk to producers and find out what people will do; general consensus
risk management strategy = upper basin hurt by climate change; upper basin agrees to lower # less than 75M and lower basin doesn't make a deal

Risk Management
Moderator Name: Diane Hope
Note-taker Name: Craig Godbout
Additional Table Members: Jeff Devere, Dale Wiescamp, Alan Leak, Mike Applegate, Ty Wattenberg, David Merrit

What are the two most critical aspects of your conversation?
1. Assume an acceptable level of risk and plan accordingly
2. Hedging reduces risk, and storage is hedging – More storage needed across the state

Discussion Question: What other risk management tools should be explored? - Would including risk management strategies change your roundtable's portfolio? If so how?
Notes:
Broader conceptual idea that needs to be addressed from micro to macro issues
Agricultural tipping points?
We will never run risk of over-development, however we may run risk of under-development, where Utah would be the beneficiary
Estimate range and then proceed, zero risk unrealistic
Sensitivity analysis and consequence – Who is taking the risk? How do you spread risk? What are the consequences if you don't take on risk? Least cost with minimal risk (optimize)?
Recognize what the risks are. 30 years ago we didn't know what was coming – nothing's changed.
Zero risk means paying the price.
Take the question beyond just a compact question
Additional storage can be accomplished by various methods. Must convince public that storage needed to meet the Gap. Support may be more forthcoming for storage projects if they are multi-purpose projects
Multi-purpose project that gets drawn down for one of the purposes will impact other purposes (sacrifices'?) Public needs to know what the possibilities are.
We need many, small storage projects
CRWAS says 0-800k af available? So go with 350k af split for both East and West slope
River District must realize that some uses are more important than other – Human and industrial needs first

Risk Management
Moderator: Eric Wilkenson
Note-taker: Denise Rue-Pastin
Additional Table Members: Larry Cerrillo; Andrew Colosinio; Dan Henriches; Gerald Knapp; Olen Lund; Mike Shimmin

The two most critical aspects of the conversation included: 1) There is a need for more modeling to look at triggers points (including additional storage); and 2) There is a need for more cooperation with other Upper Basin States related to risk management strategies, including intentional surplus in Lake Powell and/or at other locations in Colorado.

Discussion Question #1: What Other Risk Management Tools Should Be Explored?

- Trigger points!
- Agricultural transfers also need infrastructures to move the water.
- Shortage sharing criteria.
- Further examine ways to share shortage criteria.
- Need long term modeling to keep 10 year average water in the Upper Basin States.
- More models of what would happen in shortage situations.
- Need to look at augmentation of supply sources (e.g., desalination, snowmaking, etc.).

Discussion Question #2: Would Including Risk Management Strategies Change Your Roundtable Portfolios?
Southwest—No, but need more information.
North Platte—No, risk management would have already been part of the planning.
Discussion Question #3: What are the two most critical aspects of your conversation that you would like others to know?
See paragraph one above.
Miscellaneous

- Storage or stored water must be saved for more than 10 years otherwise it's a zero sum gain.
- Need to seriously look at what strategies can be put into place.
- Intentional surpluses can be used in times of storage from the Lowe Basin states.

Risk Management
Moderator: Peter Nichols
Notetaker: Kirk Russell

Notes:
Q1 – are there other risk man strategies
___ – weather modifications increase
___ – must be basin wide (10% increase)
___ - risk management instead tools
what are the extremes
'if factor' – if period of time
easy to not look at real risk over the period of time
look at extremes instead of averages when assessing risk
___ – who is at risk?
who would we administer a lower basin call
our priority system is a risk management system
constitution says we have the right to develop unappropriated water
compact call administration
___ – appropriation vs adjudication date how to sort the
compact is separate for water rights administration
curtailment not 'a call'

Q2 - if you could add some risk management stratagies does it change the thoughts how you meet the gap?
___ - no change (most in basin think 150K AF avail in Colo)
Jeris – there is factor inherent in portfolio in Ark basin due to reduced expectations of water avail in CO River
___ – no change because there was no look at available
risk management approach will effect
don't support the do nothing approach and have prior appropriation system work. work to manage the avoidance of a curtailment
risk is personal (basin)impact we need to look at statewide
active risk management to avoid over appropriation
need to dev a formalized risk management strategy to avoid curtailment as a risk management

Risk Management
Moderator Name: John McClow
Note-taker Name: Karen Kwon
Additional Table Members: Bob Rice; Phyllis Thomas; Dan Birch, Blaine Dwyer; John Porter; Ren Martin; and Pete Conovitz

What are the two most critical aspects of your conversation?
a. Risk management important to have responsive mitigation strategies before development occurs. Need to identify the "sweet spot" bewteen avoiding curtailment and leaving water on the table simply for Lower Basin Use.
b. Imperative to have Risk Management startegies incorporated in portfolio tools recognizing that it may change things considerably.

Discussion Question:
What other risk management tools should be explored?
Notes:
1) Compact Compliance Pool – alternative is Blue Mesa Ark/Gunnison Study -
There may be triggers for the pool that require specific action that may include but are not limited to:
- conservation measures imposed; water banking implemented; interruptible junior supplies to put in Blue Mesa or Lake Powell, pre-emptive curtailment.
2) Develop additional west slope storage (series of small storage facilities), provide for development or response to Compact call.
3) Allow for education throughout the Upper Basin to have a better understanding of risk of curtailment.
Discussion Question: Would including risk management strategies change your roundtable's portfolio's?
Notes:
NOTE – group did not talk about whether it would change the portfolios as much as the importance of risk management.
The consenus was . . .
Regardless of whether it would or would not, risk management strategies should be a prerequisite to having any development and a requirement of any portfolio.

Risk Management
Moderator Name: Wayne Vandeschuere
Note-taker name: Taryn Hutchins-Cabibi
Additional Table Members: Chuck Howe, Jim Hall, T Wright Dickinson, Cortney Brand, David Beaujon.

What are the two most critical aspects of your conversation:

A. The question about what else we should use is a bit premature because we do not fully understand the capabilities of the existing tools (i.e. measuring and monitoring).
B. Including risk management in the portfolio tool would change the BRT outcomes, but the portfolio tool is not the right mechanism to use to consider all the elements that must be considered to inform decision making (i.e. costs and benefits).

Discussion Question
What other Risk Management tools should be explored?
This question is a bit premature because this is an issue that is new to the IBCC and the BRTs. There is concern in the Yampa because storage and water are not equally distributed.
What's the role of storage in this discussion?
Agree storage is a key element
Big question is $ when talking about storage.
Tool does not deal with costs
Agrees with storage comments
AZ has GW storage that helps with RM and CO doesn't. This is a disadvantage, but GW storage is not a silver bullet.
Discussion Question
Would including risk management change the BRT portfolio?
There are many limitations of the tool, so what else needs to be there
Yes, because of the limitations of the tool, as the tool begins to offer more flexibility for nuances then things would change.
Would allow for more information and thus more informed discussions and decisions
There is no sense of the incremental risk that comes with ag transfers, projects and other strategies
Not enough W slope water from ag to mitigate during a call to counteract the amount of transbasin diversions.
Pre-compact W. Slope rights are really quite important – especially during a call. Is there a market based solution?
Question for him is how do we prevent a call rather than what we do once it occurs
Should we look at the science and how we recreate the snowfall of 2011?
Comparative costs and benefits need to be looked at before talking about alternatives.
How do we reflect intrinsic costs that aren't easily quantified (externalities)?
There are some well accepted methods for this
What can we control and not? People migrate toward opportunity. CO is likely to be a place that people come to rather than leave which is why conservation is key RM strategy.
Toilet legislation was an attempt at this, but there wasn't political support for this. To reach levels that west slope desires on conservation, utilities can't do it alone.

How do we make changes to society so that we can grow in a responsible manner? Timing on these decisions are critical.
Water resources review committee is consensus based (7/10 to pass) but just because it didn't pass doesn't mean it's dead.
Conservation has risks too.
Pricing should reflect the "true" value of water in urban environments.
pricing works at eliciting a response.
Got off track, but conservation is a RM strategy.
Cons. As an RM strategy shows that we are not getting full use of our Colorado apportionments.

Risk Management
Moderator Name: Stan Cazier
Note-taker Name: Kelly DiNatale
Additional Table Members: Erik Anglund; Emily Coll; Dave Kanzer

Discussion Question:
What other Risk Management tools should be explored?
Suggested potential strategies

- Is there an ability to pro-actively restrict juniors in anticipation of a compact call?
- Groundwater Recharge
- Water Banking
- How to administer a compact call
- Alternate supplies
- Forbearance
- Issues of exchanges
- Shared shortage agreement for curtailment during droughts in anticipation of call
- Severe conservation demand reductions triggers
- Dedicated compact compliance pool

Discussion Question:
Would including risk management strategies change your roundtable's portfolios? If so, how?
Notes:

- New water supplies must include portion dedicated to compact protection and meet in stream flow demands
- With risk management more comfortable for development of Colorado River supplies
    - Say 200 KAF of new compact storage, to the extent the risk is eliminated through risk management strategies

Part 2.3: Storage

Discussion Questions: Storage

1. Will storage be necessary to implement your portfolio? What types of storage do you think will be most successful in the future and should be evaluated? What barriers need to be overcome to implement storage projects in Colorado?
2. Does your basin have enough storage to implement the different parts of the portfolio(s)?
3. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Storage
• Storage is of vital importance to all basins. Gaining multi-sector support for expansion and rehabilitation of existing facilities is an essential first step. • Each roundtable should identify a storage project within its basin, focused on expansion or rehabilitation that encourages multi-sector cooperation, addresses multiple uses and serves as an example for future projects within the basin.
• New storage is needed, and partnering with non-traditional groups is critical. • Finding consensus through collaboration is difficult, but important.
• Storage is of vital importance to all basins. • Gaining multi-sector support for expansion and rehabilitation of existing facilities as a vital first step. • Each RT should identify a project with conjunctive uses to serve as an example for future projects.
• We need more roundtable-to-roundtable discussions on storage needs. • We need to work to streamline the regulation process.
• We need to add a rigorous study of storage to SWSI 2016 (e.g., regional needs for the basins) and use processes like the currently used. • We need to create a matrix of priorities for beneficial use of stored water and then apply evaluation criteria. • We need to identify institutional barriers, permit simplification, too much duplicate or resource commitment, legal, and governance.
• Do the IPPs in your basin require storage? If so, where? How much? • We need to have the ability to manage water using storage to maximize efficiencies and beneficial use.
• Storage is needed for all portfolios to meet both consumptive and nonconsumptive needs. • We need to actively pursue rehabilitation/expansion of existing storage facilities such as the Preferred Storage Option Plan (PSOP) and Chatfield.

• We need storage! We needs to find a way to get past the barriers:
  ○ It takes decades to develop.
  ○ There are massive hurdles.
  ○ We need priorities for use of stored water.
  ○ The West Slope needs others to share in the Compact risk.

  - We should implement strict conservation and require that all transferred water is used to extinction.
- We need to take specific new and existing storage projects and start working on them.

Storage
Moderator Name: Sue Mora
Note-taker Name: Tom Acre
Additional Table Members: Tim Decker, Phyullis Philips, Steve malers, Ken Ransford, Frank Yeager, John Hendrick, Mike Berry

What are the two most critical aspects of your conversation?

3) - Find a way to get past barriers.
   - Need more storage, to develop takes decades!
   - Massive hurdles – most imposed by Federal and funding needes to develop new storage.
   - Need priorites for storage on west slope and compact risk management
   - West slope wants – strict conservation-demonstrate using transfers to extinction, shared risk related to compacts

4) Need to take specific storage projects (new and existing) and start working on them.

Discussion Question: Will storage be necessary to implement your portfolio? What types of storage do you think will be most successful in the future and should be evaluated? What barriers need to be overcome to implement storage projects in Colorado?
Notes:

- No basin has enough storage – need local and upstream storage.
- Look at storage as a tool – not necessarily a supply when related to conservation. For conservation to work you must have storage. Water reclamation – re-use is going to need storage after treatment. Education of the public on conservation will help save dollars. Lawn irrigation return flows go to storage. 3.39 ac-ft per year .
- Storage helps with operational/management tool. Timing = seasonal storage.
- How far do you go; storage – conservation – drought response? Need storage for drought response – long term versus season timing as a management tool.
- Should we use xeriscape for new development – set expectations early?
- Tow drivers for storage – funding and water rights. Have some offline storage for Gunnison, but need to fill the gap before trans-mountain diversion. Lack of funding and objections prevent some projects from moving forward, i.e. Flaming Gorge.
- Is it possible to take off of the top "wet year water" and move that to east slope, then also allow filling of Lake Mead and Powell? Use as system dry spill years (wet) are part of system.
- Still need to agree to use west slope water to extinction.
- Need to understand the time required to do a project
- State needs to help.
- Tipton Study – evaporation issue – more storage – loose more to evaporation. Compact issues – long-term – will there be a shortage long term due to reduced runoff at Lees Ferry? If there were risk management strategies to protect from a compact call, does that make west slope more amenable to trans-basin move? West slope – if call is made, need to share in risk to mitigate call.
- Need to really know how much is available, where to use it – plan for development. Front Range needs to protect people moving to places such as west slope.
- we are having discussion – more on infrastructure and how to move water around.

  - How do you deal with water rights issues and the ability to move water around? Impact how much storage you keep – when is it filled.
- Are you ok to build storage? Build excess knowing you may not use it all- all the time.
- Need consistent supply.
- Ned to look at storage and movement of water statewide. How to overcome barriers – need to take into consideration compact call – 10 year period.
- How can we balance year to year and basin to basin?

Types of Storage

- Aquifer storage (ARS) – should be part of tools, ARS is not fool proof, how much can you put into aquifer and at what rate.
- Not type, but location and need specific projects and to prioritize.

West Slope - Fear is call on compact – want agreement that need to put all rights up for discussion (i.e. pre 1930)

Really need to start all storage projects now! Move forward on movement of water.

Roundtables need to look at specific projects and start working on these.

Discussion Question: What barriers need to be overcome to implement storage.

Notes:

- All – ESA and NEPA – Federal Regulations, money – recreation – Local barriers: Boards and Public.
- lace of an advocate for project. Roundtable process has been beneficial, need to prioritize – where does water fall in the spectrum of projects.

How to over come

- conservation is a barrier to new supply and development, off-Colorado Storage.

Storage
Moderator Name: Carlyle Currier
Note-taker: Jamie Prochno
Table Members: Jeff Comstock, Don Ament, Chuck Wanner, Bill Warmack, Matt Bliss, and Chris Kraft

What are the two most critical aspects of your conversation?

- New storage is needed
- partnering amongst nontraditional group and multiuse is critical to new storage
- Finding consensus through collaboration can be a hindrance to new storage; difficult but important.

Discussion Question: Will storage be necessary to implement portfolio? Types of storage and barriers?
Yes, water could be stored in South Platte, have been working NISP and Windy Gap for 10 years and many Millions without much progress.
Maybe the answer is smaller projects. Storage is critical the barriers are permitting, high costs without success, and funding.
Many ways to store water, need to use all types, there are opportunities that haven't been explored besides ag dry up. Need to remove sediment from existing reservoirs to use available capacity. Using existing capacity could benefit urban and rural – less conflict and permitting. Ditch companies have tried this approach with success using underground offline storage, municipalities can provide funding.
Need to maintain rights to flood irrigate, sprinklers are a bad idea because cheapest storage is in the ground. DS users depend on return flows.
Have converted 60% to sprinklers to reduce labor costs and use a small pond at sprinkler site.
Did sensitivity analysis of flood sprinklers but not with ponds.
Noticed reduced return flows DS when converted 60% to sprinklers.
May make sense to augment, easier than reservoirs.
Do lose water in high flows, disagreement between upper and lower Yampa on storage.
Augmentation Plans – when are they appropriate and can be used on river not fully appropriated?
Suggest a recharge project to shave off high flows, environmental groups don't agree with shaving off high flows, court challenges. Glade reservoir shaves peak and argument is that flushing flows are removed. Parks services want flushing flows to wash out silt and tamarisk.

Political/environmental barriers; studies exist on historical flushing flows and major ideological differences.
Mostly talk about city vs rural, but storage brings in environmental groups, local projects are easier to do because conversation is smaller, but large projects like NISP bring in national/regional attention.
Education after drought people didn't understand the need for storage, many people think sending more than compact requirements is good. We need to understand each others perspectives.
Ag community is very concerned, pursuing small projects like well coop.
Learned not to characterize others, easy to make incorrect assumptions; reach out to well stakeholders ahead of time, multi-purpose is the way to go, and externalized costs are an issue.
Can we come together to do future storage?
Roundtables get everyone to the table it's a good start.

Do basins have enough storage?

Mostly no, but SW is close, ALP helps with M&I and compacts, and interstate compacts must be met. In the old days fewer stakeholders were involved now there are many more people at the table. To build/enlarge storage we need to collaborate with more stakeholders to get bug-in and support.
Could turn the water around at the state line, salinity problems can prohibit as much reuse.
Some water rights allow this type of reuse, buy and dry in Eastern, CO. the water goes elsewhere.

2 ideas; permitting, partnering and multiuse is the future of new storage. Political will is consensus on storage projects can be a hindrance to new storage.

Storage
Moderator Name: Greg Johnson
Note-taker: Mark McCluskey
Table Members: Mark Morley, Jim Broderick, Shanna Koenig Camuso

What are the two most critical aspects of your conversation?

- Do the IPP in your basin require storage? If so, need to identify where and how much storage?
- Ability to manage water using storage to maximize efficiencies.

Discussion Question: Will storage be necessary to implement portfolio?
Yes, all but North Platte

1. What types of storage do you think will be most successful in the future and should be evaluated?

- All Parts of portfolio require storage
- Storage required on Colorado for Upper Basin deliveries
- General concern with ability to build large reservoir
- Ability to develop storage in area's
- (ASR) Aquifer storage & recovery which is site specific evaluate size and location of storage options

What barriers need to be overcome to implement storage?

- Exchanges
- Enviro Regulations
- Federal Nexus (EIS, EPA)

2. Does your basin have enough storage to implement the different parts of the portfolios?

No

- Need storage to put water to beneficial use (environmental, M&I demands, Ag demands, recreation compact obligations, etc.)
- Conservation removes the elasticity from supplies for utilities
- Water conserved needs to be put to beneficial use need storage to make this happen

3. Does what you've learned confirm your roundtable portfolios or do you need to make changes? If so, what changes?

No, but emphasized need for storage
Arkansas Basin; #1 IPP is storage project. #2 ability to move/manage stored water.
Not only is storage necessary but the ability to use storage to make maximum beneficial use.

Storage
Moderator Name: Carl Trick
Note-taker name: David Harper
Additional Table Members: Sen. Giron, Betty Konarski, Ken Smith, MaryLou Smith

What are the two most critical aspects of your conversation?

A. Storage is of vital importance to all basins. Gaining multi-sector support for expansion and rehabilitation of existing facilities is an essential first step.
B. Each roundtable should identify a storage project within its basin focused on expansion or rehabilitation that encourages multi-sector cooperation, addresses multiple uses and serves as an example for future projects within the basin.

Will storage be necessary to implement portfolios?

- Ark basin has 2nd largest gap, expansion of Pueblo res. Is not enough, N. part of the Ark Basin is on groundwater, it is necessary to have water when it is needed. Storage therefore is necessary to accommodate growth
- N. Platte is not affected by transmountain diversions. Storage in any basin is vitally important to capture flows for when they're needed.
- Storage doesn't necessarily have to mean 'big storage' but smaller projects, cooperative storage and rehabilitation of current storage in addition to aquifer storage.
- Figuring out how to preserve senior rights is of the utmost importance
- Building storage means that you have an asset
- Private Funding: Rate payers will have to bear the burden of infrastructure expansion
  Would a successful, flexible project serve as an example?
- In ground storage is difficult because you can't see it
- Aquifer v. above ground storage – if a project is instituted, who owns the water?
- new organization needed to monitor wells in real-time and many surface and groundwater aquifer rights

Barriers

- No more on-channel reservoirs
- Storage is a bargaining chip
- We need to sit at a table without labels

Storage
Moderator Name: Mark Koleber
Note-taker Name: Steve Miller
Additional Table Members: Reed Dils, Tom Hatton, Steve Larson

What are the two most critical aspects of your conversation:

A. Storage needed in all portfolios both to meet consumptive and yet to be identified non-consumptive needs.
B. Need to actively pursue rehab/expansion of existing storage facilities such as Chatfield and PSOP

Discussion Questions
Do you need storage for your portfolios? What types? Barriers?

- To firm up existing diversion rights (like PSOP or Moffat Firming) for transmtn. Supplies
- Alt. ag methods need storage to provide for year round M&I from seasonal conservation use from ag
- Junior Colorado River diversions need storage to account for variable hydrology.
- Non-consumptive needs satisfied with new multipurpose projects

Types:

- Better use of existing facilities (new operational rules)
- Enlarge existing facilities (PSOP, Gross Reservoir)
- Off-channel to facilitate exchanges and gravel pit for same use

Barriers:

- Environmental permitting
- Cost
- Need for environmental mitigation

Is your portfolio still valid as to storage after thinking about today's lessons?

- Ark Basin changes unlikely
- Metro no changes

Part 2.4: Agricultural Transfers

Discussion Questions: Agricultural Transfers

1. For each basin, how many irrigated acres do you think could be made practically available in a rotational fallowing, interruptible supply agreement or other alternative transfer program to help fill the M&I Gap (as opposed to drought supply)? What issues with these methods should be addressed.
2. How do we incentivize ATMs and pay for the added infrastructure, storage, and advanced water quality treatment that may be required?
3. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Agricultural Transfers
• In order to incentivize ATMs, there is a need for the development of a common technical platform useable by all parties to reduce transaction costs, including the development of additional storage with the State taking a more active role. • The transaction has to take into account the financial viability of leaser and leasee to avoid unintended and cumulative adverse consequences.
• Alternatives to agricultural transfers have a lot of merit and potential. They continue to be pursued. It may not be the natural leg of the stool but nonconsumptive transfers can also happen. • There are a lot of unique versions of alternative agricultural transfers depending on the location of the agricultural and city needs; there are a lot of different things that will work in different places.
• The IBCC needs to look at deficit irrigation or low water consuming crops in addition to other ATMs to move CU water to a city. • The IBCC needs to evaluate the "conservation easement" concept and if it can work under an ATM.
• We suggest taking the lessons learned from all these ATM studies and experiences out to other basins more effectively with each other. • We suggest an emphasis on continued evaluation of ATM barriers and solutions, many are being explored and we must continue to chip away at these issues. • ATMs are in their infancy in Colorado and we do not have enough studies completed to make permanent decisions.
This table was not able to reach agreement on the two most critical points of their discussion. Aspects of their conversation addressed the following topics: • ATMs are most viable on a sub-region or regional basis in order to understand economics and third party impacts. • ATMs dry up agricultural land – don't pretend otherwise. • The cost of water is likely to change significantly. • There are prior appropriation doctrine and property rights constraints. Accounting for return flows is a major constraint to implementation. Current State statute does not clarify quantification, accounting for return flows. • We need to move from theory to practices and we must address the business deal.

• There is still too much risk to take a deal to Water Court until there is some statutory clarifications that provide certainty.
We have questions about the appropriate scale of fallowing: many small pieces versus larger blocks? What are the tipping points? What are the unintended consequences and externalities?
• We need to move from theory to practices with all partners at the table to address externalities and legal components. • To make ATMs viable, there is a need to consider them at the regional/sub-regional level to understand all the economic and efficiency tradeoffs.
• Roundtables need to revisit agricultural dry-up; there is a need to balance agricultural dry-up/ATMs with agriculture to maintain agricultural production efficiency (agriculture to market opportunities). • Agricultural dry-up/ATM is easy – infrastructure is hard.
Permanency and location are critical issues; we are so far unconvinced that ATM is a viable strategy, but it is still early and there is a need to keep exploring this. Innovation may solve this.
• ATMs have a lot of potential and continue to be pursued for both consumptive and nonconsumptive needs. • There are many different and unique versions of ATMs depending on the location – agriculture and city needs are different – different things will work in different places.
• We have concerns about local economies directly tied to the agriculture industry as it relates to quality of life and the "tipping point" (connections with tourism, jobs, etc.). • We suggest integrating the various solutions to meeting the water supply needs, including ATMs, and moving them forward as one "stool."
• We suggest simplification of agriculture water transfer systems (temporary transfers) to give more flexibility to the process. • Presumptive consumptive.

Ag Transfers
Moderator Name: April Montgomery
Note-Taker Name: Caitlin Coleman
Additional Table Members: David Beaujon, Kelsey McElroy, Dale Wiescamp, Chris Kraft, Tom Simpson, Corrin Steiglemeier

Notes:

- Interrupting supply more than lease fallowing
    - The Highline Canal in the Ark Basin—there's a number where, above it, shareholders aren't interested
        - Ex: lease 10% of the land and people aren't interested, 50% of the land and people aren't interested… but they found that leasing 30% was perfect… so they took 30% of the irrigated land
    - Pawnee Powerplant near Fort Morgan—ditch goes by—could have to dry acres to be sure there's enough water for the Powerplant
        - They have a 40 year lease agreement. The agricultural producers leasing their water rights receive money whether or not the Powerplant uses their water that year. The payment farmers receive more than covers all the water
        - Should have tied it to a municipal water right.
        - They didn't go through water court—it can be done without legislation
    - The Rio Grande is just getting into this, but they have no transbasin issues.
        - Lease fallowing could take place within the agricultural community—potato farmers could want to dry hay fields… do they have enough $$ to take water out of one ditch and put it into another? When times and prices are good for agriculture the whole idea of lease fallowing changes!
        - Question/problem: Farmers aren't an entity—they aren't a government, they aren't a nonprofit…
    - There are many ways to do this!
    - Must consider use—it depends on who you make the deal with
- How to incentivize and pay for alternatives to ag. Transfers?
    - ___- If I could avoid an ag transfer I would. If we can prevent it we should look at that first.
        - Reservoirs are silty now. If we could dredge and dispose of the dirt… if you could do that, then split the water with the city and tell the city if they dredge they can have the same amount of water and a sublease for a dry year—that could avoid ag. Transfers
    - ___- Cities don't mind spending $$ if they can get some certainty
        - Have to streamline the process to make it easier
        - Depends on what you're looking for. Some of us just want to fill our reservoirs to begin with.
    - ___- You need buy-in. Having people come together around a plan is the hardest part.
    - ___- It takes forever today because we're thinking about all of these things. We have more constituents who need to have a say.

  - ___ How important is it for people to understand what agriculture means to the state? 80% of our water is in ag but 40% is the consumptive use of ag…. People don't know or understand that. How do you get that across?
  - The Colorado Basin is more likely to go to a compact call, risk etc. There's potential to do some transferring to nonconsumptive use and compact call. Lower Basin- high value ag- can't dry up an orchard… but there could be more efficiency in crop watering.
  - We need to structure the process to let these transactions happen. A lot of people don't know that these options exist—we need an informational website where we present different options or case studies of what's been done in lease fallowing.
- 2 most critical aspects:
  - Alternatives to ag transfers have a lot of merit and potential. They continue to be pursued—it may not be the natural leg of the stool but nonconsumptive transfers can also happen.
  - Alternatives to ag transfers- there are a lot of unique versions depending on location of the ag. And city needs. There are a lot of different things that will work in different places.

- Is there a disconnect between planning subdivisions and water?
  - In the 80s and 90s we were losing 90,000 acres/yr or so… ark buy and dry is worse because they aren't trading for something else… there isn't much growth from Pueblo all the way out to Lamar. When these farms disappear nothing is replacing them.
  - Farms around Ft Morgan have sold to cities… if farmers in the area had known that farms were going to cities they would have come together to buy them or somehow prevent it.

Ag Transfers
Moderator: Chris Sturm
Note Taker: Hal Simpson
Table Members: Cindy Lair, Angela Giottio, Gerry Knapp, Tim Macklin, Meg White

Question 1:
The group introduced themselves and then agreed that we could not really answer the question on how many acres could be practically made available as we did not know enough facts to make an estimate. We decided rather to focus on the variables that could impact the acres that could be included in ATM projects in a basin. ___, who works for Aurora water in the Arkansas Valley on some of the canals where water has been purchased and transferred to municipal use, stated that an important consideration is whether the water to be acquired from an ATM is for meeting a permanent part of future demand or temporary to deal with drought demand or recovery. Aurora used an interruptible water supply agreement (IWSA) approved by the State Engineer to lease water from the Rocky Ford Highline Canal (RFHC) to provide water for two years to assist Aurora with recovering from the drought of 2002. He pointed out that the ability to move the water to a city is an important factor and either exchange potential upstream in the case of the RFHC water or infrastructure must exist allow the water to be used by a city. Absent one of these two factors, an ATM may not be feasible or practical. ___ stated that in some cases "willing partners" in an ATM such as shares under FRICO (Farmers Reservoir and Irrigation Company) which has storage reservoirs in the Barr Lake system and could be used to store water and possible release it to the pumping plant and pipeline below Barr Lake owned by East Cherry Creek Water and Sanitation District. It was agreed that in some cases some systems have infrastructure in place that would make ATMs more practical than for other systems without any infrastructure. ___ emphasized that exchange potential on the South Platte River is necessary to move water upstream to the metro area. ___ pointed out that exchange potential is limited on the South Platte during the irrigations season and there can be five dry-up points at senior canals that prevent exchange above the dry-up point. ___ indicated that it would be helpful to have presumptive CU (consumptive use) established for a ditch system involved in an ATM otherwise it can take considerable time and engineering effort to establish the CU under a ditch system for use in an ATM or IWSA. Aurora said it took 18 months to obtain approval from the State Engineer for its IWSA for the RFHC. ___ said it would be helpful to have a ditch wide CU analysis completed in advance of the ATM or IWSA.
___ said another factor that Aurora believed to be important under its RFHC lease was that all farmers under a lateral had to agree to participate in the lease so that there was no need to try to deliver water down a lateral which can complicate operations. ___ asked if there are a minimum number of ditch shareholders that should participate in an ATM in order to make it successful and ___ responded that he did not think so as long as it was deemed practical to the city to and the canal company. ___ did say that for Otero County that its 1041 regulations could impact a transfer if it is for more than 3 years and could impede a transfer out of the county. ___ finally asked if there is a need to allow for some minimal irrigation under a ATM dry-up to provide for soil moisture so that irrigation can be resumed at the end of the fallowing under an ATM? ___ said he did not think so and research by CSU in the Arkansas Valley supported this opinion.

Question 2:

The group then moved on to ways to incentivize ATMs. ___ said one of the important factors to a city that has to invest considerable funds in an ATM is to have certainty which for a city is usually considered as a permanent program and not a lease that can be canceled. The group discussed this issue and agreed it is a possible factor that could be difficult to overcome. ___ said there has been some discussion in the Arkansas River basin about using a conservation easement to assure that the water and land remain in an ATM. ___ said the concept is that the city would buy the land and water and place it in a conservation easement where the irrigation water could be temporally moved off the land in an ATM but the water would not be moved off permanently. ___ indicated some skepticism over this concept but said it needed to be explored and better understood.

The group then focused on the two most critical aspects of ATMs that it wanted to share with the IBCC and they are as follow:

1. The IBCC needs to look at deficit irrigation or low water consuming crops in addition to other ATMs to move CU water to a city.
2. The IBCC needs to evaluate the conservation easement concept and if it can work under an ATM.

Ag Transfers
Moderator Name: Peter Nichols/ Gary Barber (we merged our groups)
Note-taker Name: Taryn / Regan
Additional Table Members: Don Magnuson, Marc Shivley, Adam Turner, Doug Roborthem, Randy Carver

What are the two most critical aspects of your conversation?

- Move from theory to practive with all players at the table and aaddress externalities and legal piece.
- To make ATM viable there is a need to consider them at the regionl/ sub regional bassis so you can capture the economic and effeciency trade offs.

Discussion Question: What are the concerns regarding ATM?
Notes:
ATM is still dry up
We shouldn't be trying to pick a number of acres to dry up—we are asking the wrong question
Efficient use should be the focus not fallowing & have to have the right people at the table
wants a hands on applied assessment
economic piece—will cities pay what farmers want?
small water users could be more educated on the options
what is the economic tipping point at which the AG lifestyle is impacted?
farming is still a business and options need to make good business sense
use it or lose it prior approp. Limitations
some areas of northern Colorado have zero interest in ATM
interruptible supply as opposed to rotational fallowing will help keep agriculture going
need the accounting piece, pilot projects and policy piece to really look at all this. There is no "how to guide" on how to do ATM. Interruptible supply is limited to reasonable uses
no one has really run this through the court
how do you balance the business end with the judicial piece?
can interruptible supply be utilized for environmental needs?
or can it be utilized during drought for all sectors including muni, enviro, rec etc.
how do you utilize storage to use the water where you need it when you need it?
maybe it's not just during periods of drought. Infrastructure is a critical component of this discussion and even storage is a piece of this puzzle.
need assurance and that often comes in the form of storage
efficiency in AG doesn't equate to transferable water
need individual business plans that can then be regionalized.

Ag Transfers
Moderator Name: Gary Barber
Note-taker Name: Reagan Waskom
Additional Table Members: Adam Turner-Martinez, Randy Carver, Mark Shively, Doug Rabotham, Don Magnuson, Taryn Hutchins-Cabibi

Discussion Question:

- ATMs most viable on a sub region or regional basis to understand economics and third party impacts.

Notes:

- ATMs dry up Agland – don't pretend otherwise
- Cost of water likely to change significantly
- Prior appropriation doctrine and property rights constrains
- Accounting for return flows is a major constraint to implementation
- Current state statute does not clarify quantification, accounting for return flows
- Need to move from theory to practices – must address the business deal.
    - Too much risk to take a deal to water court until there is some statutory clarifications that provide certainty**.**

Ag Transfers
Moderator Name: Alan Hamel
Note-taker Name: Craig Godbout
Additional Table Members: Ken Huson, Elise Bergsten, John Wiener, Barbara Vasquez

What are the two most critical aspects of your conversation?
1. To incentivize ATMs the development of a common technical platfrom uasble by all parties in order to reduce transition costs, including the development of additional storage, with the stae taking a more active role.
2. The transaction has to take into account the financial viability of leasor and leasee and to avoid unintended, cummulative, and adverse consequences.Discussion Question: 1-4 from ATM info sheet
Notes:
Along Front Range farmers don't want to sell water to municipalities because they would be prevented later from selling land for development
Most sales to out-of-town buyers for hunting and fishing but lease back to farmers
Super Ditch 20-25% fallowing required among participants to make project attractive to buyers. Tax status of farmers does not change if fallowing or ISA (?)
Uncertainty on behalf of farmers and buyers. Ag needs to change to sustainable practices.
Additional storage in Arkansas Basin needed for successful ISA. Need reliable consumptive use, protection from injury, need to know transaction costs
Organizations to do this up to this point have not been larger enough to pull this off. Missing: presumptive use and insurance coverage. Public interest at stake where state could/should be involved.
Programs in the long run should be self-sustaining without subsidies
Deal must be sustainable for buyers and sellers, public interest should be protected and prevention of cumulative environmental impacts

Ag Transfers
Moderator Name: Carlyle Currier
Note-taker: Tom Browning
Table Members: Rachel Richards, Michael Stiehl

What are the two most critical aspects of your conversation?

1. Concern about local economies directly tied t the Ag industry, as it relates to quality of life and the "tipping point" (connections with tourism, jobs, etc. for sustainability)
2. Integrate the various solutions to water supply needs, including ATMs, and move them forward as one "stool".

#1 How many acres? Rotational fallowing or other ATM

- West slope not as much suitable for ATM projects (perennial crops, different than seed crops)
- Not enough info at the table to answer this question
- Concern for local economies directly tied to the AG industry
- CSU work is looking at that issue; making progress with answering that question
- Good idea about "tipping point" for sustainability
- Connection to recreation/tourism economy (e.g. wineries, etc) and quality of life
- NW COG paper on website
- Focus has been on ATM's as a method to help M&I users. What about ATM's for nonconsumptive needs?
- Other than changing crop type, are there measures' that can be used to amend soil, etc? To reduce water use?
- West slope water bank to hedge against compact curtailment in the future
- End user for M&I needs to pay for the costs of added infrastructure, treatment, etc
- Incentives lead to sustainability such as conservation easements
- Multi-purpose/multi-benefit projects

#2 Question?

- How do you get individual farmers to cooperate in the programs? Voluntary programs
- Super ditch concept seems good on the surface; still same basin questions about long term success
- Lower Arkansas idea is outstanding; potential flaws though
- Deficit irrigation holds some promise
- All types of incentives; what works? Encourage purchase of Colorado Ag.
- Farming/ranching is still a business and the budgets have to work

#3 Question?

- Arkansas no; feel comfortable with portfolios
- All legs of stool are inter connected
- Take conservation to next level to take pressure off Ag
- Not easy! Costs to consumers/homeowners
- Find way to add value to Colorado Ag

Ag Transfers
Moderator Name: Travis Smith
Note-taker Name: Tom Acre
Additional Table Members: Susan Smolnick, Brett Gencley, John Carron, Gene Majuello, Zack Margollis, Wendy McDermitt

What are the two most critical aspects of your conversation?
Revsit Ag dry up. Need balance – real numbers to dry up an maintain Ag efficency.
Ag dry up is easy – infrastrucure is hard.

Discussion Question: For each basin how many irrigated acres do you think could be practically available in a rotational fallowing, interruptible supply agreement or other alternative transfer program to help fill the M&I Gap (as opposed to drought supply)? What issues with these methods should be addressed?
Notes:

- Recognize it will happen; will get harder to have some available. Ag is looking up – depends on economics.
- Ft Collins – Water rights rich – storage lean. Rent back to Ag –Water supply Storage Company – attempt change case in water court without dry up. Rent back helps to offset cost. Year to year leas of water. Owner ship is an issue. For development they require funding or water supply to be brought with new development.
- Natural area purchase in county – separated land and water- keep as farm. Exclude water from utility use and allow farming.

Discussion Question: How do you incentivize ATMs and pay for the added infrastructure, storage, and advanced water treatment that may be required?
Notes:

- Who do you incentivize and what do you incentivize?
- End water user vs utility or Ag?
- Incentivize ATM rather than dry and buy.
- Need good plan. Need to consider transfer water to location where it is needed.

Discussion Question: Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so what changes?
Notes:

- Wendy – minimize Ag dry up.
- Dry up 30% of Ag begin to have a problem with farm/market infrastructure i.e. processing efficiency for food, if get to low, processor goes away.
- May need to start looking at other things, limit dry up of land, how to handle storage.
- Minimize Ag impact – how to control.
- Should we be looking at no dry up
- Should we development be less desirable.
- Minimize impact to irrigated Ag as you look at portfolio.
- May be everyone should look at 6% increase in efficiency

Ag Transfers
Moderator: Olen Lund
Note-taker: Steve Miller
Additional Table Members: Phylis Phillips, Koleber, Tom Hagebund, Ken Spann

What are the two more critical aspects of your conversation?

1. Questi rorational scale, what are tipping points- a small piece of each form vs a small group of entire form
2. Unintended consequences, externalities

How many access for ATM

1. Gunnison upper flows lower potential to fellow, lets on to sagebrush

Mainstem- Uncompahgre: federal water tied to land
N Fork- below Hotchkiss some can't do w/ orchards/vineyards
Irrigation return provider fall river flows

2. Arkansas 200,000 very crust est. can't easily move through
3. S Platte est ½ of available ? but need to consider exchange potential
4. No one from other basins here buit doubt much potential in rio grande
5. Issues to be addressed 1. Green meadows vs. sagebrush as tourist/community amenity

Ag Transfers
Moderator; John Porter, SW BRT
Note-taker: John Sanderson, The Nature Conservancy.
Members: Terry Book, Philo Shelton, Steve Fearn, Mark Morley, Harold Evans, Will Koger

Who has had experience in this area? ___ described three efforts TNC is working on: Dolores, Yampa, and the just-signed IWSA on the Poudre. ___ described deals with farms going back 10+ years, buying water then leasing back to farmers. Greeley leases water back to ag users in most years, but use goes to cities in dry years. Permanence issue is a real concern. Challenges: 1) Permanency: once a tap is built, cannot risk irrigator deciding he wants the water back; 2) also, need to get the water to the city's inlet; if there is not exchange potential, you have to build a pipe. Aurora has said that SuperDitch is a near and medium term solution. In the long-term they are looking at a permanent solution.

1) For each basin, how many irrigated acres do you think could be made practically available in a rotational fallowing, interruptible supply agreement or other alternative transfer program to help fill the M&I Gap (as opposed to drought supply)? What issues with these methods should be addressed.

___: In Arkansas, there was a study that suggested 25% of acres are not even worth irrigating. Would just as soon make better use of my most valuable commodity (i.e., water) ; ___—how are high commodity prices going to affect this. Is there any way around the permanency? ___: No; if I were benevolent dictator, as municipal provider, I could see an 'permanent' agreement that is an interruptible. Irrigators must be willing to encumber that water permanently? Described 40 year lease in Imperial Valley. Question is: what happens at the end of 40 years? Greeley is buying $2M of water per year right now then lease back for (effectively) lifetime of the current owner. Location and seniority of water is really important. One of the things that may come out of this process: it may make more sense to use lease water for non-consumptive even more than consumptive.

2) How do we incentivize ATMs and pay for the added infrastructure, storage, and advanced water quality treatment that may be required?

Cities lease surplus water to farmers in most years; in dry years, irrigators give up that water while also throwing in their own water rights. ___: what about cities owning farms to solve permanency issues? There are currently tenant farmers right now. One way to incentivize: get rid of inheritance tax? ___: in yampa value, there is no interest whatsoever in buy and dry. What are you doing to supply growth. We are moving water from lands that are being grown over. ___: in Larimer and Weld County, we used to be growing onto irrigated land, but that is changing—now we are growing onto dry lands.

3) Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

We are not convinced that ATMs are possible. ___: nothing we've heard today would change our portfolio analysis. SP discounted IPPs that rely on ATMs. Every roundtable, you need to be risk averse . . . need to build a reasonable safety factor.

4) What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

i) Permanency (and location) are critical issues. As such, we are unconvinced that ATMs are a viable strategy, but . . .

ii) We need to keep trying. Innovation may solve this

Ag Transfers
Moderator Name: Dianne Hoppe
Note-taker Name: Caroline Bradford
Additional Table Members: Patricia Flood, Courtney Brand; Dick Wolf; Bruce Whitehead

What are the two most critical aspects of your conversation?

- Take lessons learned from all the ATM studeis and experiences out to other Basin Roundtables. Share these stories more effectively with each other. Unless you are on one of the BRT's doing the studies, you just don't know about the results or even what the real issues are.
- Emphases on evaluariotn of ATM barriers and solutions. Many are being explored. Continue to chip away at these issues.
- ATM's are in their infancy in Colorado and we don't have enough study to make permanent decisions.

Discussion Question:
For each basin, how many irrigated acres could be practically available for Alternative Agricultural Transfers?
Notes:
We don't know…the water providers have better information about how many acres are located where they have the infrastructure to get the water where it needs to be. Others don't have this information.
The question is about opportunities for compact purposes and drought.
Is there a willingness to bring this ag water to the table for the gap? We've had the new laws on the books for about 10 years but still they (ATM's) aren't used much now.
Ag seems open to the discussion, but there is still reluctance. Why is this? For the future…they provided fuel for thought but not fuel for action.
Why not? Muni's have purchased ag water but they aren't really pursuing the use of these mechanisms.
Struggles the Super Ditch have had are challenging.
There seems much merit to deficit irrigation—even though there are still administratively difficulties.
Laws are layered with a lot of complexity when it comes to administrative processes. Regulatory framework doesn't seem to be barrier. What is holding these things back?
Ag wants to maintain ownership (The 401K plan for ag…) Muni's want long term certainty.
South Platte credits for augmentation that didn't require changes in status…
It often depends on who is going to lease this water. Most muni's need something FIRM rather than something that is used by large providers than it is for interuptable drought supply.
Reducing transit costs…
The water court process cost can even be higher (to quantify all the different aspects of analysis on different parcels.) It can be cheaper to just buy the ag water permanently. But what are the financial advantages to both sides for temporary transactions?
Glad the State is going through these exercises to determine benefits and impacts of these issues.
ATM is drying up ag. We just don't think of it that way. The dry up just rotates around to different parcels.

Discussion Question:
HOW DO WE INCENTIVIZE ATM's?

Notes:
Don't charge a fee for each transaction. (LOL)
We have to make it easier to do these deals so that they just become less costly to implement. Unless citizen's fund this as they do huge transportation infrastructure, it is difficult to see how it will become commonplace.
Municipalities have to show operating cost benefit ratio in the year it's being pursued, not some indefinite date down the road. Otherwise, it's just more difficult to pay for these temporary yields on a long term basis.
(Aurora's lease in Rocky Ford Highline is a model.)
With 4, 5, 10 year benefits they don't really pay for themselves. Limited beneficial lifetime of the deal.
You are still forced to go to water court for the short term benefits.
Adoption of presumptive CU credits would streamline the deal.
Real time mechanism—RISK, Infrastructure storage of water – Decision timeline is not "convenient" for anyone.

Discussion Question:
DOES WHAT YOU HAVE LEARNED HERE CHANGE YOUR PORTFOLIOS?
Notes:
Front Range folks said no, although CBRT rep said yes.
More education between BRT's about ATM's would be very beneficial in understanding what the implications of rotational fallowing really are for all parties concerned. Folks on the west slope do not know the details about these concepts when it comes down to putting them into practice, so it's hard to know the logistical impacts of the numbers and percentages we are putting into the TOOL. The issues are pretty foreign to those who are not involved directly in ATM's. All agreed if we shared existing information better, it would strengthen the portfolios.

Part 2.5: Conservation and Reuse

Discussion Questions: Conservation and Reuse

1. Referring to the conservation table, what conservation practices should be moved forward across the range of portfolios?
2. Beyond the work of the water providers, what work can the roundtables do to support implementing conservation?
3. What types of monitoring can be put in place to determine progress toward achieving conservation levels?
4. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

Conservation and Reuse
• We need public education, face-to-face and hands on, and to begin early (i.e., pre-school). • We need to address conservation rate structures and model land use plans, and lead by example (i.e., thru roundtable process).
• As applicable, all conservation practices should be moved forward as soon as possible. • There is a need to integrate land-use planning, as appropriate through regulations, and water planning.
• There is a need to create statewide conservation standards and communal expectations. This will make it easier for everyone to measure what they are doing. • There is a need to continue education and marketing of conservation best practices.
• Conservation should be purchased to the maximum extent possible. • We need to develop legal and economic mechanisms that enable the use of conserved water to benefit of the entity or individual conserving the water.
• There is a need to develop implementation strategies and share successes and results across BRTs and seek WSRA grants for implementation of best management practices at the local level. • We need to address the role of statewide versus local implementation.
• We need funding assistance – use grants/WSRA to fund/advance conservation and reuse projects/etc. • There is a need to support legislation with a concerted effort in outreach and education – part of the process toward legislation – to reach more people and entities.
• We must incorporate land use controls into conservation. • We need information sharing on what does work and communication across basins.
• We need public education, face-to-face and hands on, and to begin early (i.e., pre-school). • We need to address conservation rate structures and model land use plans, and lead by example (i.e., thru roundtable process).

Conservation and Reuse
Moderator: Jeff Devere
Note-Take Veva Deheza/Kelly DiNatale (combined with Steve Vandiver's Group)

What conserve practices should move forward across all portfolios?
Next 10-15 yrs. New conserve. Technologies not reflected in spreadsheet- focused on monitoring and tracking more conservation technologies coming
Should we hold everyone to same standard east slope/west slope
Small, med, large utilities
Do you just focus on 80/20 rule
Is presumption of universality unrealistic eg. Rangely, CO
RTs can help with education and outreach
RTs can bring a lot of diversity to the discussion and can influence very broad group of stakeholders
No commonpath
losing time- person/sq mile trigger (idea) that calls for certain conservation programs at certain benchmarks
are there any COMMON statewide initiatives to level the playing field
xplore statewide opps vs local opps and how they relate to the BMPs

Conservation and Reuse
Moderator: Eric Wilkenson
Note-taker: Denise Rue-Pastin
Additional Table Members: Dan Henricks; Alan Leak; Peter Mueller; Ken Smith; Marik Waage; Bahman _____ (sorry, didn't get last name)

The two most critical aspects of the conversation included: 1) As applicable, all conservation practices should be moved forward ASAP; and 2) There is a need to integrate land-use planning, as appropriate through regulations, and water planning.

Discussion Question #1: What Conservation Practices Should Be Moved Forward?
As indicated above, the group thought that, as applicable, all conservation practices should be moved forward as soon as possible. They agreed, however, that there may be no one-size fits all approach. In addition, it was noted that conservation is a difficult issue because it's a heavy hit on water utility revenues.
While there should be outdoor irrigation use reduction measures, it was noted that water utilities don't have authority over this from a land use planning and development perspective. In regard to agricultural irrigation, there are no incentives for efficiency. Often there occurs increases in consumptive use and decreases in return flows. There was comment that from an agricultural perspective it may be better or make more sense to apply conservation to users downstream first because then that water would 'back-up' the system. Finally, it was noted that irrigation inefficiencies have recognized and non-recognized benefits to the system.
There is a need to incentivize water conservation so that from an agricultural and M&I perspective it becomes attractive. There were questions about opportunities in Colorado water law to look at conservation on a case-by-case basis?—How can we increase flexibility? Finally, there was a comment that rather than tax-based special water districts in Colorado, perhaps utilities should be user-fee based for transparency purposes.

Discussion Question #2: Beyond the Work of Water Providers, What Work Can the Roundtables do to Support Implementation of Conservation?
The group thought that the Roundtables could share education experiences through case studies. In addition, they should emphasize that conservation can keep water available for aquatics, recreation, urban renewal, and wildlife. They agreed that the Roundtables could promote integration of land-use planning and water planning, this to include regulations as appropriate.
Discussion Question #3: What Types of Monitoring Can Be Put in Place to Determine Progress Toward Achieving Conservation Levels?
There was an idea to monitor public opinion regarding conservation and whether they understand that we will loose agriculture and other benefits if action is not taken. In addition, they agreed that conservation reporting should be required for qualifying entities to report their water savings.

Conservation & Reuse
Moderator Name: Wayne Vanderschuere
Note-taker Name: Kaylea White
Additional Table Members: Mark Pifer, Bob Rice, Jennifer Gimbel, Bruce Hutchins, Mark McClusky, John Stencel

What are the two most critical aspects of your conversation?

1) Funding: use WSRA and other grants to help implement conservation and re-use projects
2) Legislation (again): with concerted effort in outreach (to reach more and different people) and education (as part of the process)

Discussion Question: What conservation practices should be moved forward across the range of portfolios?
Notes:

1. What do the shaded rows mean in the table?
    a. Full Metering of individual customers
        i. What would you do with the information?
        ii. Education tool – how much water do you use?
        iii. Measuring technology within margin of error should be considered.
    b. Public Information and Education
        i. Who decides which conservation practices should be used in each portfolio? Legislative requirement? Intimidation? Best practice? By example, or providing sample ordinances?

Discussion Question: What can the roundtables do to support implementing conservation?
Notes:

1) Support legislation
2) Public outreach and education
    a. Outreach to county commissioners, mayors, city council, chambers of commerce
    b. Build a constituency
    c. Outreach to green industry, land planners
    d. Outreach to new entities, people
3) Water Efficiency Grant fund – CWCB
4) Provide basin funds to implement conservation plans; Water supply reserve accounts – requirement of grant application is to have a conservation plan in place.
5) Support industrial conservation with incentives to save water. Provide material and information to show the savings.
6) Impact of conservation on the utility's revenue: formulate a response on the "value of water"
7) Funding for aging infrastructure: maintenance; detect leaks; repair; replace.

Discussion Question: What types of monitoring should be used to determine progress toward conservation levels?
Notes:

1) Raw water monitoring to see what the losses are -- in the delivery system
2) In the distribution system – meters to measure customer inflows and outflows
3) Federal legislation

   a. Guaranteed loans to improve aging infrastructure
      i. But, if the system is only partially fixed in one place, this can cause blow outs at other points of the distribution system
      ii. Better performance, fewer losses if just make efforts to maintain the system
      iii. There may be revolving funds for this issue
4) Help identify leaks, etc. in small communities
5) Lysimeter monitoring on laws for over-application of outdoor irrigation
6) Encourage Green infrastructure
   a. Parking lots; Partnering with green architects/landscaping for outdoor irrigation
7) Outdoor irrigation is very important – the best way to conserve consumptive use
   a. Set standards? Legislation – top down approach
      i. Legislative process provide education – residential building
   b. Monitor with lysimeters
   c. Consult with sprinkler maintenance
   d. Hourly fluctuations in rates
   e. Encourage xeriscaping
   f. Model ordinance for communities – voluntary
8) Focus on municipalities and industrial conservation

Conservation & Reuse
Moderator – Nicole Rowan
Note Taker – Jeff Baessler
Other table members: Nick, Jim, Gail, Brandon, Drew, Frank, Mike

1) Referring to the conservation table, what conservation practices should be moved forward across the range of portfolios?

- Public Education … people need to know about aridity of the west. But not just on eastern slope but west also. It must be a statewide effort. Some areas on west slope still don't have meters.
- Water loss controls, rates and customer data tracking… easy to do measures.
- One idea is to do it on a more regional basis-like DRCOG. Land use codes would also help.
- Is there the ability to restrict the landscapes of future residents? Yes – local codes would certainly have an effect. Lobby by water agencies to land use entities (towns) could be effective.
- Density zoning should be considered.
- Price will be the ultimate control. Providers will need to develop / purchase water and the cost will need to be passed onto the customers.
- Agricultural, commercial and industrial conservation need to be addressed, but there are some obvious barriers. Would need to change water law.

2) Beyond the work of the water providers, what work can the roundtables do to support implementing conservation?

- Have to provide legislators political cover so that they can move important conservation legislation.
- Seek grants to fund conservation projects. For example, irrigation study efficiency study that was just funded.

3) What types of monitoring can be put in place to determine progress toward achieving conservation levels?

- Monitoring of per capita water use. But must be individual use by water users also.
- Track reduction of annual diversions. But real time tracking would be difficult.
- Monitoring of Individual programs success – to make conservation program the best it can be and then share that information with others.
- Monitoring of cost.

4) Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

- Metro is most proactive basin. Already doing it and want to do more if possible. Have already saved say 2% for last 10 years. Will continue to achieve more. 40 to 50% of savings went toward growth. Doesn't change the portfolio. Will try to do more than tool says but won't change.

5) What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

- Must incorporate land use controls into conservation
- Information sharing on what does work and communication across water basins

Conservation & Reuse
Barbara Biggs, Moderator
Michelle Pierce, Note Taker
Participants – Jennifer Bock, Frank Jaeger, Casey Davenhill, Ian Shelledy, Steve Malers, Jorge Figueroa, Ken Ransford.

Question 1. Referring to the conservation table, what conservation practices should be moved forward across the range of portfolios?
Comments:
Full metering
Conservation oriented rates
Water loss control
Water waste ordinance
Public information and education
Landscape water budgets
Rules for new residential construction
High efficiency fixtures and appliances – residential construction
High efficiency fixtures and appliances – non residential construction
Rules for new non-residential construction

Question 2. Beyond the work of the water providers, what work can the roundtables do to support implementing conservation?
Comments:
Promote conservation measures through local jurisdictions (i.e. City Councils, Planning Commissions, County Commissioners) by providing model ordinances and plans.
Foster public education.
Using natural drainages for stormwater runoff.
Use stormwater runoff for irrigation.
Use stormwater to recharge alluvium.
Roundtables should become involved in promoting proposed legislation.
Establish conservation subcommittees on the roundtables.
Educational inserts in water bills.
Educate young people in grade schools, middle schools and high schools.
Need charismatic statewide leadership.
Leadership in terms of quantifying conservation efforts.

Question 3. What types of monitoring can be put in place to determine progress toward achieving conservation levels?
Comments:
HB 1051 reporting guidelines.
Reporting average gallon/per capita/per day consumption per community or region. Single family homes only.
Verification of savings realized through use of high efficiency fixtures, etc. Maybe establish a pilot program in select communities.

Field verification.

Question 4. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?
Conservation is used as a fudge factor and we should acknowledge that.
No way to capture and reuse conserved water.
Independent studies.

Question 5. What are the two most critical aspects of your conversation that you would like the CWCB, IBCC and other roundtables to know?

1. Public Education – face to face and hands on. Should start early – even in pre-school. Utility bill inserts could be a good venue.
2. Establish conservation rate structures and model land use plans.
3. Lead by example – i.e. thru the roundtable process.

Conservation & Reuse
Moderator Name: Steve Vandiver
Note-taker Name: Kelly DiNatale
Additional Table Members: Lisa Darling; Lauren Belanger; Chuck Howe; Linda Bassi; Jeff Devere; Chris Treece

Discussion Question:
Referring to the conservation table, what conservation practices should be moved forward across the range of portfolios?

Notes: (Never got around to answering this question)

- Clarification of active vs. passive
- Providers are at varying levels of Best Management Practices
- Medium vs. high savings are based on level of penetration
- Should larger or East Slope utilities be required to do more? Some believed it is unfair to ask larger providers to do more. All utilities should be treated equally.
- Should rural Colorado be exempt? Or small systems? There were strong beliefs that rural Colorado will not accept the imposition of strong water conservation standards and cannot afford the costs of implementation.
- Should measures be state-wide or left up to local control? No agreement on this issue
- Some state required conservation measures have not been implemented by all covered entities

Discussion Question:
What types of monitoring can be put in place to determine progress toward achieving conservation levels?

Notes:

- HB 1051 will help – in place
    - Some smaller covered entities don't have accounting infrastructures in place to report under 1051

Discussion Question:
Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Notes:
No

- Lack of commonality across Basin Roundtables in conservation goals

Discussion Question:
What are the two most critical aspects of your conversation that you would like the CWCB, IBCC, and other roundtable members to know?

Notes:

1) Develop implementation strategies, successes, and results shared across roundtables

2) Basin Roundtables should seek WSRA grants for implementation of water conservation Best Management Practices at the local level
3) Are there common measures that can be implemented state-wide – role of state-wide vs. local implementation

Conservation and Reuse
Moderator Name: Greg Johnson
Note-taker Name: Arista Hickman
Additional Table Members: SeEtta Moss; Erik Anglund; Phyllis Thomas; Chuck Wanner

What are the two most critical aspects of your conversation?

c. Create statewide standards and communal expectations that are easier for everyone to measure what they are doing
d. Continue education on best practices and marketing, including roundtable adoption of best practices list for conservation

Discussion Question:
Referring to the conservation table, what conservation practices should be moved forward across the range of portfolios?

Notes:

- Statutes to comply with don't always fit every customer. The list of best practices is a helpful framework for working with stakeholders and within the statutes.
- CWCB is going through the statutes and marrying hem with the list of best management practices.
- Some statutes fit well and others do not fit well, but you still have to comply with all.
- The stair step approach of the conservation practices is helpful. An organization can go higher as abilities allow. The best practices are already tried and true, so an entity doesn't have to reinvent the wheel.
- Levels Analysis as building blocks and tiers of conservation best practices
- The Guidance document will also help with implementing best practices.
- There are still water districts, mainly rural, that don't have full metering. However, the number of water districts without full metering becomes less and less every year.
- Sometimes it is resistance to change, but mostly it is a lack of resources that limit meter implementation. It costs approximately $100/customer plus meter-reader employment.
- There is no state law to enforce metering.
- Funding is the only "hammer" that CWCB has. Limiting state funding based on conservation plan and volume.
- Conservation oriented rates = increasing block rate, the more water you use the higher rate and the more you pay.

Steps for implementing conservation best practices

- Implement meters and then increasing block rate
- During drought the financial encouragement through rates is the most effective tool – more so than "water police" and select watering days

Conservation oriented tap fees: structured to discourage larger taps based on rates, to better fit customers to specific demands (i.e. commercial, ag, and residential).

- CWCB is undergoing a major effort to quantify water conservation practices and on the ground implementation
- Best practices are not just residential, but commercial also

- For a water utility: selling water is their business, but implementing water loss control saves water and money. Thus it is a good reason to conserve, because there is less water to treat and less water is wasted.
- Block rate structure – what was the base rate? – average winter time
    - Shoulder month usage – increasing rate based on bell curve
    - More of a preventative / discounting factor
    - Less cost for treatment and securing new water
    - Example 3-tier neutral profit tiers with 4th tier as revenue generating for additional water needed
- In CA, water budget by zone – landscape water budget
- Cities moving towards block budget: Denver uses technology and has stormwater rates based on GIS maps
- Expected low ranges (i.e. water budget) in the conservation table low floor (0 – 30%), is too low, this range won't get you anywhere. These are very conservative goals.
- Especially since large utilities should be assumed to have implemented this which covers over 50% of the population
- Are we serious about conservation?
- Funded versus unfunded mandates are a stumbling block
- Legislation vs. technology / practice
- How to set a higher target?
- Collecting data on penetration rates of practices – 1051 entities submitting data to CWCB

Discussion Question:
Beyond the work of the water providers, what work can the roundtables do to support implementing conservation?
Notes:

- Education
- Funding
- Best Practices more standardized statewide – common goals, promoting for everyone
- Having statutes that are flexible enough to fit variability of providers, but still higher enforcement of statutes
- Endorsement of Best Practices
- Set goals high enough for people to make an effort
    - Setting the bar high enough, we have high expectations
    - Minimal amount greater than 0%
- Low, medium, and high for active conservation after passive conservation applied

Discussion Question:
What types of monitoring can be put in place to determine progress toward achieving conservation levels?

Notes:

- Measurement of / standardizing of customer billing – possibly not passed – good first step of customer monitoring
- 7 year long plan, set target and measure / monitor to make sure meeting target – statewide trends
- House Bill 1051 – helps with monitoring

- How to know which best management practice produces which result?
    - Look at trends over period of time
    - Surveying customers more may provide more data
    - Seasonal trends
    - Savings % wise by customer for practices – most bang for buck
    - Ballpark data about what savings might be for practices implemented – Guidance Book has pages on each practices
- Quantifications is the root of calculations
    - Excel spreadsheet to figure out nuts and bolts
- Electronic metering / monitoring
- Large public places – no flow toilets (men's urinals)
    - Currently these are not regulated as a conservation best practice
- Portfolios pushing for medium – high conservation: future conservation practices unknown, it is uncertain what will be available and what technologies will exist
- What if utilities require practices of new development?
    - More than #14 rules for new residential construction
    - Need rules for multi-unit development (i.e. landscaping)
    - Easy to pass on cost without too big of an expense
    - Similar to rate structures – watch where to put weight
- Some providers do not have control over all services and so they can't put limits on construction and conservation practices

Incentives

Conservation Tap – half tap fee and service under lower rates, results in half water and rates restriction

- Stays with lot in perpetuity – new owner can pay to upsize
- If exceed amount, (i.e >10,000) rates increase from $3.50 to $12.50, whereas with a standard tap, the rate would increase from $3.50 to $3.75

Dual Systems – domestic inside, non-potable outdoor (irrigation)

City of Westminster customizes meters to each customer

CWCB to collect innovative ideas – the best practices is a good step in this direction

Discussion Question:

Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Notes:

- Roundtable Portfolios
    - No low conservation – need at least medium and some high
- Both sides pointing at each other to do more (East Slope and West Slope)
- Water going out of state helps prevent call

Part 2.6: New Supply

Discussion Questions: New Supply

1. How can Colorado River Water be used to address the 2050 Demands from SWSI? These demands are - west slope demands, oil shale, Front Range demands, nonconsumptive needs, increased agriculture in the Yampa Basin, increased power generation, etc.
2. Given the competing future demands for Colorado River Water, what additional activities need to take place to better analyze how we should all use Colorado River Water to meet those demands? (E.g., planning, analysis, engineering, costing, identification and understanding of issues that need to be addressed, stakeholder discussions, studying compensatory storage for a transbasin project, comparative project evaluation, etc.)
3. What do we do now and what do we preserve for the future?
4. Does what you've learned confirm your roundtable's portfolios or do you think you need to make changes? If so, what changes?

Discussion Key Points

From their discussions, each table group identified the two most critical aspects of their conversation to share with the CWCB, IBCC, and other roundtable members. These key points are outlined below:

New Supply
• We should maximize our entitlement on the Colorado River, but not limit new supply sources to the Colorado alone. • Implementing project to develop water on the Colorado in stages to appease multiple interests and obligations
• It is necessary to develop all of the water to which we are entitled under the Colorado River Compact, but sources of new supply should not be limited to the Colorado River system. • We need to seek to implement a project(s) to develop Colorado River water in stages so as to appease multiple viewpoints and obligations.
Developing any new supply is likely to be very hard and fraught with obstacles, but overcoming (lessening) uncertainty regarding the risk of curtailment by developing monitoring and trigger points that would enact activities to avoid curtailment, would help gather support that may be necessary to get new supply ultimately developed.
• Additional activities need to include efforts regarding Compact curtailment, nonconsumptive needs, economic impacts, and infrastructure needs, and a decision matrix needs to be developed. • What we need to do now is gain more information and have more dialogues. What we need to do in the future is look into a Missouri River transfer.
• Storage is the sum of risk management and new supply, and building smaller reservoirs and creating more, smaller reservoir rehabilitation. • There is a need to get environmental groups to the table and for more public education, possible changes in current laws, and term sheets between East Slope and West Slope.
• There is a need to use market-based decisions tempered by risk management strategies to balance statewide needs and maintain viable economies. • There is a need to implement unique basin solutions through increased education/understanding and creative cross-basin dialogues and negotiations to support both local and statewide solutions.
• Storage solutions (with quicker turnaround, smaller scope, and extent) should be examined on the South Platte to capture "extra" water flowing past state lines (e.g., maybe

underground storage?). Consider learning-by-doing demonstrations. Could something like this be supported at the State level (through their leadership)? This would take pressure off the Colorado River and benefit Front Range M&Is (who owns/administers those storage systems? There is a need for a workable exchange system. • The mindset is too often that new supply needs a big project. We need to think in terms of a two-track approach with smaller projects that can happen in do-able, short time frames (e.g., Wolford Montinaun) • Compensative storage! (Where, however do we get capacity to move water transmountain?)
New supply must be developed in a fair, balanced, and equal way, to satisfy multiple uses and needs on both the West Slope and East Slope, and be predicated on realistic risk management strategies.
• Developing a new supply can take 20-50 years and therefore, we need to start planning now for 2050 and move forward as soon as possible. • Yes, Colorado River water should be used to meet 2050 demands. It should be done in a way that considers the needs of different interests, shares the benefits in times of abundant water, and shares shortages during drought. • Saving agriculture use and culture will require water from other sources including transbasin diversions.
• We need to appropriate permitting processes to enable innovative storage projects, with multiple benefits, to include surface closed aquifer, alluvial aquifer recharge, and terminal storage for new supply. • We need to develop leadership at local, regional, and State levels to drive the process.

New Supply
Moderator Name: Gary Barber
Note-taker Name: Ray Alvarado

Discussion Question:
The 4 questions related to New Supply was not really focused by Moderator. Group jumped around from Demands to Risk Management.

Notes: It was mentioned that tools are needed, commonality of new supply, moving from planning to implementation, evaluating risk and adaptive management. Free market vs. regulation are related to conservation.

New Supply
Moderator: Jeris Danielson
Note Taker: Leah Opitz
Table Members: David Taussig, Val Valentine, Tim Decker, Jeris Danielson, Ray Alvarado, Jamie P, John Hendrick, and Doug Manger

Question 1: How can the Colorado River Water be used to address the 2050 Demands?
We assume that there is unallocated water in the Colorado….
Storage

-How can we capture more run off and move it to locations where its needed?
-We need more storage of new supply
-Multi-Use storage with environmental benefit to avoid environmental problems.

-We need to bring environmental groups to the table so that we can all be on the same page and work together on this issue.

-Underground storage, gray water use/reuse
-We need to look at large vs small storage options

Trigger Points

-Flows, demands, conservation, storage
-How to we determine these triggers and understand the risk better?
-We need more appropriate and better risk analysis tools.

Prioritization of Interests
-On the Gunnison, "Ag in the top priority, which are met before other demands are met. This is not the case in all basins"-Gunnison Rep.
-On the Yampa/White: Inter-basin development has been a key priority.

Question 2: What additional activities can be done to analyze how to use Colorado River Water?
West Slope Rep: Use of new supply means wise use, conservation, minimization of importation
We need to consider competing demands

-Compacts, water rights, east slope and west slope demands
-Privatization of small storage
-"Term Sheet" can be used to address competing issues
    -Term sheets include ag, environment, industry, and municipals demand info

Environmental groups need to be brought into this discussion
More public education, not just information, is needed! More outreach!
Interbasin impacts of possible compact curtailments?

-No basin is alone, we all need to work to work together
-storage is needed to avoid compact curtailments

Prior appropriation, current laws, are inhibiting storage development
Projects between East and West slope should be based on need/demand and anticipated demand/need
Group agrees that we need changes in the current water law structure.

Question 3:What do we do now and what do we preserve for the future?

We should develop water now to use in the future (if we know that there is a specific amount of unappropriated water)
Small storage is better than large storage project.

-More flexibility

-We need entitlement now to build in the future when we really need it!

Rehabilitation of existing infrastructure

-Are we losing water in old structures? We need to more analysis to determine this and to know where we need rehabilitation vs rebuilding.

New Supply
Moderator Name: Eric Hecox
Note-taker Name: Karen Kwon
Additional Table Members: Mike Fink, Heather Dutton, Brian Werner, Reed Dils, and Roger Kilgore

What are the two most critical aspects of your conversation?
a. Develop monitoring and trigger points to reduce uncertainty and insecurity of Compact Call and allow for development with helpful support.
b. Very hard to develop new water supplies at this time as it is fraught with significant obstacles.

Discussion Question:
How can Colorado River Water be used to address the 2050 Demand from SWSI?
Notes:
1) Build a West Slope Storage Project with Front Range money to help finance it.
2) Use the water from the storage project to serve as a compact compliance pool to benefit the State as a whole (East and West Slope) i.e., buy water for compact compliance.
3) Build a big project with pump back capabilities and/or smaller projects at headwaters using existing infrastructure.
We recognize that obstacles abound with each of these and that it will take a lot of flexibility, planning and resources.
Discussion Question: What type of analysis or additional activities need to take place to better analyze how we should all use CR water to meet those demands?
Notes:
1) Endangered species clarifications –how water users will be involved in addressing survival and recovery both now and in the future.
2) Important to note that compensatory storage for a transbasin project will involve very fact specific negotiations that may not be captured by analysis, however, negotiations may be informed by analyses.
3) Develop some concepts or guidelines of how curtailment avoidance may occur so as to provide some security about future development.
Discussion Question: What do we do now and what do we preserve for the future?
Notes:
1) Get a hand on quantification in specific places, i.e. inventory new sources to consider, what and where.
2) Talking 2040 timeframe – better start now, need to look at state and federal processes because not sure we can use same process in the future (takes too long, too many obstacles).
* Identify and incorporate new ways of getting things built to overcome obstacles associated with, among other things:
Anti-speculation, politics, permitting, financing.
Overall look at process by which decisions are made and approved so as to refine and revise process.
Roundtable process encouraging in this manner.
Discussion Question: Does what you've learned make you want to change any round table portfolios?
Notes:

Not really, but maybe look at conservation based on what Metro Roundtable mentioned in morning panel discussion.
Suggest at the very least, encouraging more interbasin (inter-roundtable) discussions.

New Supply
Note-taker: Perry Cabot
Table Members: Jean Townsend, Don Ament, Larry Cerrillo

SUMMARY AND CRITICAL POINTS:
1. Storage solutions (quick turnaround, smaller projects), should be examined on the South Platte, to capture "extra" water flowing past the state line (maybe underground storage?). Consider "learning-by-doing" demonstrations. Could something like this be supported at the state level (leadership)hip? Would take pressure off the Colorado River and benefit Front Range M&I. (Who, then, owns/administers these storage systems?) We need an exchange system on the South Platte to take advantage of these smaller storage systems.
2. Mindset is that new supply projects have to be large. Think of 2-track approach with modest incremental projects that can happen in a short time-frame (e.g., Wolford Mountain), and consider the best of the larger projects for long-term advancement.
3. Storage comes to mind. Compensatory storage would be a way to guarantee that there would be water for more people. (Where, then, do we get the capacity for moving water by trans-mountain diversions?).

DISUCSSION:
QUESTION #1:
How can Colorado River water be used?
Storage comes to mind. Compensatory storage would be a way to guarantee that there would be water be more people.
With increase in fracking technology, if its any way close to projections, do we really have a threat from oil shale?
But you could have a wonderful compensatory storage project, but it can take very long to finish the permitting process? Planning and permitting are connected.
Modeling is valuable, but takes a long time to prove and tweak
Other: Have their been any studies to look at years of high flow?
The unappropriated water is between 0-900,000 acre-ft. Firming storage and compensatory storage are interrelated. What are the opportunities for these storage programs? How would they be administered? If you have junior storage rights to store this water, are the storage vessels on the East Slope, West Slope ... where woudl be the optimal locations? What is the priority of that water? How are you going to administer this water? Everybody in our RT does not want to diminish agriculture, on boht sides of the divide. So you have to balance the system. It's not hard to balance the system in times of plenty. During times of drought, concepts like interruptible supply could be very valuable and could kick in. If we are going into these bad period, then how do we make sure the infrastructure is there when we need it?
It would seem to me that we need to enlarge existing reservoirs. Especially on the South Platte, where available water is released at the state line.
It's hard to build storage soley for ag use. We're trying to meet the M&I water gap, but

QUESTION#3

Start on smaller activities. There is a mindset that new supply projects have to be large. Think more like a two-track approach with modest incremental projects that can happen in a doable short time-frame (think of Wolford Mountain, maybe underground storage?), and consider the best of the larger projects. Snowpack management

New Supply
Moderator Name: Jim Yahn
Note-taker Name: Matt Brown
Additional Table Members: Bill Trampe, David Graf, Scott Hummer, Brad Udall, David Nickum

What are the two most critical aspects of your conversation?

- Use market-based decisions tempered by risk management strategies to balance statewide needs and maintain viable economies.
- Implement unique basin solutions through increased education/understanding and creative cross-basin dialogue and negotiations. Local and statewide solutions.

Discussion Question: New Supply #1
How can Colorado River Water be used to address the 2050 Demands from SWSI? These demands are – west slope demands, oil shale, Front Range demands, nonconsumptive needs, increased agriculture in the Yampa Bain, increased power generation, etc.
Notes:
Can also be Ag transfer.
What about deep well injection and alluvial storage? Is it only west slope?
Already being used. Is there water available?
We west-slopers want to protect water for WS in-basin needs. Inherent skepticism on new supply. Some headwater communities significantly impaired. We may overcommit in short term and not see issues until later.
Maintain strong statewide Ag economy. WS Ag must help protect e sag (statewide goal). TBDs should not have detriment to WS economy. Market should make those decisions. Supply vs. demand issues.
Keep agriculture viable. Risk Mgt – Triggers. Guidelines – so we don't fall off cliff. Balance is needed to prevent compact curtailment.
Didn't see Ag rally around itself.
Target points (e.g. conservation)
Ag/hydro timing crucial
Ag efficiency important
Use it or lose it has affected flows and water availability.
Need to consider multi-use projects in developing new supply. Storage is important to develop new supply.
Oil shale has conditional rights that will impact w sag.
Need plan in place.
Summary – Use market-based decisions tempered by risk management strategies to balance statewide needs and maintain viable economies.

Discussion Question: New Supply #2
Given the competing future demands for the Colorado River Water, what additional activities need to take place to better analyze how we should all use Colorado River Water to meet those demands?
Notes:
Green Mountain compensatory storage unique to meet junior demands. Changing 1:1 water. Should be looked at in future for both sides.

Reconcile storage with new…. Each basin is unique – make storage unique solutions.
TBD creative negotiations (outside the box) by using pump backs to keep upper WS water for WS.
Pump-back fatal flows
Aug plans
Paper chase
Depletion caps to be used
Market will drive decisions
Favorite status list (CO on top)
When water is available
Understanding / Education
Market conservation easements
Negotiations
Summary – Implement unique basin solutions through increased education/understanding and creative cross-basin dialogue and negotiations. Local and statewide solutions.

New Supply
Moderator Name: Sue Morea
Note-taker Name: Michelle Garrison
Additional Table Members: Kent Swedland; Tom McDougall; Holly Hayes; Marc Brown; Matt Bliss

What are the two most critical aspects of your conversation?
No, Colorado River water is not sufficient to meet all the 2050 demands, but yes, it should be part of the supply to meet the 2050 demands.
New projects take an incredibly long time to fund, design, gain support, permit, and build. Need to start NOW to address 2050 demands.
Need to start planning NOW for what happens after 2050.

Discussion Question: 1. How can Colorado River Water be used to address the 2050 demands from SWSI?
Notes:
Flaming Gorge Project would help meet Colorado's demands from the Green River instead of taking more water out of the stream in Colorado.
Let's make use of the water that is available in wet years.
West Slope may not want additional development for fear of a Compact call.
Explain the map – no new headwater diversions?
No, Colorado River Water is not sufficient to meet all the 2050 demands, but yes, it should be part of the supply to meet the 2050 demands.
Nebraska has built an economy on the Colorado runoff that Colorado should be storing because they have a right to use it.
We cannot use Colorado River water to meet new demands without storage, and what are the costs associated with that?
It climate change means more hydrologic variability, do we need more storage just to deal with the variability?

Discussion Question: 2. Given the competing future demands for Colorado River Water, what additional activities need to take place to better analyze how we should all use Colorado River Water to meet those demands?
Notes:
Pick your better alternatives from current analysis and start the planning and implementation process as quickly as possible.
There is a disconnect between the West Slope requesting higher East Slope conservation and the East Slope saying it has a limited ability to further increase conservation. We need to have good, informed discussions on this. Need to clarify passive versus active conservation and how they are treated in the process.
Want to remind everyone of Barbara Biggs' earlier point: providers can implement Best Practices now, but the actual savings achieved depends on the public, so we won't know the amount of actual savings until later.

Utah put out a goal of 25% reduction in per capita water use in the near future. Could Colorado do that? Can you incentivize by offering better funding or lower interest rates on loans for those who have achieved certain goals?
Conservation has to be a key goal.
It is important to start looking now at what happens past 2050.
For a project to actually be implemented, you'll need education, outreach and support. One of the hardest parts is the people part. One major challenge for the IBCC will be to get the different interests trying to find common ground and make progress together.
That has happened in Nevada and now they are working together to make the most of their Colorado River water. Colorado needs to do the same thing soon, or someone else will be making the most of some of Colorado's water, they'll derive the benefits of that water use, and Colorado will lose that opportunity.
So, Colorado needs to: 1) Work hard on achieving consensus to decide to use Colorado's share of the Colorado River, and 2) then have the Roundtables discuss where it will be used and for which projects to get the maximum benefit.
Lots of folks in Colorado will argue they don't want to risk full development and its possible consequences, and that there is more worth to keeping that water in the stream.
Maybe, but all the way past the state line? How many are for versus against? This division isn't occurring in some of the other states that use Colorado River water. They decided it was better to get the most use of their water and deal with the consequences than not derive the benefits from that water.
In many of the scenarios you will see an assumption that SOME water is available from the Colorado River, but the amount differs.
We need to look in great detail about what different people want if we are to find any common ground.
Colorado should assume some water is left and start planning for that. Then decide: 1) who gets it and 2) what happens in times of shortage.

Discussion Question: : 2. Given the competing future demands for Colorado River Water, what additional activities need to take place to better analyze how we should all use Colorado River Water to meet those demands?
Notes:
If you do that, how do you make it fair? Do you base it on money, or something else?
The Yampa River Basin wants to ensure that if they give some water away, they don't give away too much and hinder their ability to supply their own needs in their own basin in the future.
There are lots of opinions about when the water or projects will actually be needed. What happens if we don't start now in planning projects for 2050? What about these Federal and other processes that are currently underway?
It will take at least 20 years to complete a project and regulation in the future will probably increase, so we need to understand that and start at least 20 years ahead of when we anticipate the need.
Utah is working on the Lake Powell pipeline. It is less contentious and will still take at least 25 – 30 years to complete, and they've already gained support for the project.

Discussion Question: 3. What do we do now and what do we preserve for the future?
Notes:
How do you decide to hold something for the future knowing that regulation, contention, etc. will probably increase?

If you study a project and then stop and wait, your issues will not go away. You will still have to work on those issues later, and possibly new issues and problems as well.
If it will take 30 – 50 years from start to finish, you must start on it now

Discussion Question: 4. Does what you've learned confirm your roundtable's portfolios?
Notes:
YES

Discussion Question: 5. Do you need to make changes? If so, what changes?
Notes:
Set triggers or goals?
Maybe set a goal for maximum ag dryup just like a goal for minimum conservation?
Something like: No more than 25% ag dryup and the rest of the water must come from elsewhere.
What do we need to preserve for the future? Our ag use? Ag culture?
The younger generation is not going to return to the farm and continue the water and other battles long-term unless they really love the land. Otherwise these perpetual fights to save ag from other pressures isn't worth it.
Does that problem open up the door for corporate farms to come in and put all the family operations out of business? And then what ag culture are you saving?
Where does the pendulum swing?
The South Platte basin at one point said that 30% loss of ag land is the threshold for continued ag sustainability.
Change or limits on ag dryup will require a real movement and effort from the ag community. Ag dryup remains cheap and easy compared to the other alternatives for water supply.
Most water providers are looking to diversify their water portfolios, including ag rights. A move to other supplies without ag dryup does not provide that same diversity in their water supply portfolio.
Is there a role for government in this?
If so, it is to work on the issues of sharing, and of what different people in the state truly want

New Supply
Moderator Name: Carl Trick
Note-taker name: David Harper
Paul Fanning, Betty Konarski, Bill Warmack, Charles Spielman

What are the two most critical aspects of your conversation?

A. We should maximize our entitlement on the CO river, but not limit new supply sources to the Colorado alone.
B. Implementing project to develop water on the Colorado in stages to appease multiple interests and obligations

Discussions

- BW: Potential downstream impacts of any storage project must be taken into account
- Any CO River project will have to incorporate front-range uses
- Oil shale perhaps not as consumptive as previously thought
- Need to store every drop possible on W. Slope rivers
- CS-Mississippi drainage is worthy of consideration
- New supply is important, but ideas shouldn't be limited
- Reopening compacts may make building projects easier (general disagreement over this statement)
- Reoperation of water administration to achieve operational efficiency
- Analysis paralysis—too much analysis keeps anything from getting done
- One last project on the CO, or incremental development?
- If a clear policy is developed, does leadership have the ability to get it done?
- Crisis situation always sparks people to action
- A portfolio DOES NOT equal a plan