Draft after Saturday morning discussion

Note: I started this rolling documentation because one of the Ctte members had rightly noted that the ad hoc working groups need proper notes in order to maintain transparency for other Ctte members and the public. If you want to know where we *are*, I think this document is too complicated at this point. I would recommend you look at the current condition of the model online or the word output, whichever suits your brain best. However, if you want to know *how we got there,* then this is the right document. -CF

Hey all—

I am so sorry that the word output didn't work for you and grateful to Sue for mashing it into shape. I'll try and do better another time.

I put the composite of your sent-in comments in blue below. Results of discussion with Erica and David B are in green; with Mark, Doug, Rick and Sue are in purple. The latter group was a little wilder.

To distinguish between weighing questions and rating questions, I put the weighing questions in bold.

General comments:

- The units! I did get expert approval of the units but I then messed them up. So cost-effectiveness is in MILLION gallons not gallons, but otherwise, Sue, the decimals are right. ; -) Effectiveness is mgd.
- The recommendation for the scales is that they be quite different, say, from a survey. They should really nab the compelling idea especially at the bottom (or top). But cuteness is not good.
- There are restrictions on length for the scales but we can put the unabbreviated unit in the note above.
- We do need the scales to be odd numbers. (5 choices or 3 choices etc.)
- Strong concern about including yield/demand reduction ("effectiveness").
    - Suggestion was to make a graph with effectiveness on one axis and the "MCDS score" on the other. That can be done whether cost-effectiveness is included in the model or not. (In other words, Philip has the capability to look at the 'score' for any configuration of criteria.) Because of this Rick 'stood aside' despite his skepticism that the Ctte Members would be able to make much of this criterion.
    - Carie concerned that this parameter, if included, should be "yield / demand reduction / management flexibility" Doug suggested in separate e-mail the latter could be information but doesn't need to be in model; he feels that management flexibility ought to have *some* supply/demand facet. Anyway, neither group felt this was something that had to be hashed out at this, the stubby crayon level. So effectiveness remains as is.
    - In David-Erica discussion, we talked about the perspective that yield/demand reduction/ flexibility aren't actually good or bad *for*

this problem statement because the current problem statement isn't "how much does this help solve the supply-demand gap?" but rather "might this proposal eventually be good in a portfolio? (Then, once you get the portfolios, you start asking about the gap-filling.) So that discussion leaned heavily towards having the yield/demand reduction/ flexibility information at October and November meeting discussions, but not putting it in the MCDS model. I didn't hear that it was a deal-breaker, however (though will cycle back to them). In subsequent conversation, Doug argued persuasively that one of the purposes of this exercise is to brain-stretch the Committee (my term, not his) and that it would be a pity to miss this opportunity. He said that the proposers had put a lot of work into this and they deserved to be heard and to have their information reckoned. He pointed out that the proposers have been asked to provide this information and many of them have (and if they haven't, they have been asked to suggest questions that would help get at the numbers). And finally he said that at a gut level it feels odd to have a model about water supply that doesn't address the first thing that most people would want to know. Rick stood aside and the others either enthusiastically agreed or said "ok."

  - Also, if we do have a scale, have it be named verbally in terms of the supply-demand gap. Second group didn't really go for this and so I will cycle back and make sure David and Erica ok with the direction below.
  - The willingness to go ahead with this was contingent on finding an economic way to register "can't rate." I think this may be solved. (Uhm. Again.) Hang on.

- The Saturday group made some big changes to "Community" and to "Environmental," which I describe below. I think they actually get at the intent of those criteria in a more effective way, while avoiding the "common currency problem." See what you think!
- Not content with that, the Saturday group added "Lifetime" into "Practicability"

Below, please find the graph that was suggested. This graph and the Saturday discussion emphasized the importance of discussing the types of reports you might ask for at the October meeting and before.

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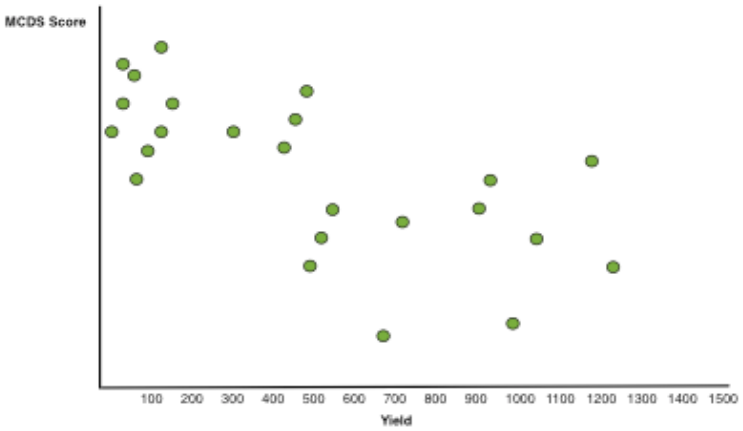


And here is a depiction of the criteria and subcriteria at the end of the Saturday conversation:

MODEL: 2nd Draft Convention Model

Draft after Saturday morning discussion

Notes: The major change to this draft is the inclusion of cost-effectiveness, addition of comments to ctte members about some of the definitions and rating scales, and finally having some scales for the cost and gallonage.
Oct 1st, 2014

Model Methodology: Simple Multi-Attribute Rating Technique

PROBLEM STATEMENT:
Evaluating Ideas, Alts, Strategies

Notes:

⇒ **Question: How much do these four criteria matter to you in evaluating Ideas, Alternatives and Strategies submitted in the Convention?** (Note-- these weights will be analyzed as a composite and will be quite useful in preparing for the November meeting.)
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Critical, Very Important, Moderately Important, Not Very Important, Not Salient]

Note: this is the scale used for the **weighting** throughout. If you mark a criterion or subcriterion as 'not salient' *it drops out of your model*. But someone else could come in and mark it as Very Important and it would remain a player in that person's model. This is not a rank ordering.

Here's a graph that shows the relationship among criteria and subcriteria after the suggested changes in this document.

CRITERIA:

Effectiveness

Notes: The expected decrease in demand OR increase in storage or supply related to this proposal.
Questions: Greater storage isn't really more water, it is more resilience or flexibility, just as management changes (e.g. making that pipe work both ways) are. In a lot of interesting ways, that is as good as more water. Let's talk about that. **(These notes are for the conference calls on Friday and Saturday 1st week of Oct.)** The question I drafted below kind of gets at that but needs work. Also, this is almost certainly more nuance than we need for the Convention.... This resolved in line with the last sentence.
Here's another nuance: in most linear scales, more is better, but political history in SC says that being able to produce too much water may kill a project because of the invitation to excessive growth. We don't want to create a scale that drops off at the top in terms of desirability. Again, probably not an issue for this model but I am trying to do my own "due diligence' and flag all the warts I can imagine. CF Not an issue for now.

⇒ Question: How well does this proposal close the supply-demand gap ~~or make the gap less risky?~~

Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [More than 2.4 mil gal /d, 1.8 mil - 2.4 mil gal / d, 1 mil to 1.8 mil gal / da, 0.2 to 1 mil gal / day, Less than 200,00 gal / d]So

Need to provide a frame of reference for this and other quasi-numeric scales. ('Quasi' because even though it has numbers in it, it is a verbal scale.)

Loud clear message: ditch the decimals (though I may have been authorized to use 'half' in some instances)
Rick registers his skepticism about ability to estimate this in any meaningful way.
Others say "then we'll know what we don't know"

Practicability

Notes: Practicability means how likely this approach is to be implemented and actually work as envisioned.

⇒ Question: **At this point in your process, in evaluating the Convention proposals, how important are Cost, Cost-effectiveness, Implementability and Acceptability to you?**
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Critical, Very Important, Moderately Important, Not Very Important, Not Salient]

Comment [CF1]: I changed this language to emphasize where you are in your process and to itemize the subcriteria rather them referring to them nebulously.

Supports Healthy Environment

Notes: How a proposal supports the environment.
Comment: this might be better written as "might" or "has the potential to support"

⇒ Question: **In evaluating how a proposal supports the environment, how important are reducing Energy Intensity and supporting Environmental Health (outside of energy issues) to you?**
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Critical, Very Important, Moderately Important, Not Very Important, Not Salient]

Comment [CF2]: The weighing questions should say "a proposal" and the rating questions should say "this proposal."

Supports Water Security (this used to be 'community' but the Saturday group felt that the community issues were already addressed in Env't and under Practicability; after some discussion it seemed that the remaining issues were really about water security)

Notes: In constructing this model, it is important to capture the things that matter, but not to capture them twice unless there is some way that they play out differently. For instance, if economy is solely tied to gallonage, and you already have gallonage in "Effectiveness" then don't add another criterion. The two subcriteria that remain DO differ from gallonage alone, as discussed below.

⇒ Question: **When evaluating the proposals, how important are the subcriteria Local Jobs and Regional Economic Security to you?_____**
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Critical, Very Important, Moderately Important, Not Very Important, Not Salient]

SUBCRITERIA:
Cost (sub to "Practicability")

Notes: Overall cost taking into account implementation, operation and expected lifecycle. This includes research, planning, engineering, land or right of way acquisition, regulatory permitting, construction or program initiation costs to get a program up and running, carbon offsets, staffing, chemicals, power, rebates or incentives, monitoring, regulatory compliance costs, program evalutation, material equipment and advertising, regular repair and routine maintenance but not major capitol rehabilitation. However, if an approach has a short lifecycle and will need rehabilitation, this should be reflected in this overall cost subcriterion. **Now that we have lifetime as a subcriterion, I think this should NOT be part of the cost???**

⇒ Question: What is the cost of this approach?

Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Less than $30 million, $30 million - $60 million, $60 million - $90 million, $90 million - $120 mil, More than $120 million]

Value Function: Type - Linear; Slope - (-)

I got the units right on this one. But "too wonky"
The discussion for this was nearly identical to the one for 'effectiveness'

Lifetime (sub to "Practicability")

Notes: The cost per unit of water in a given year. (To provide context: the current cost to the City is $--/ mg)

Question: If implemented, what would the lifetime of this proposal be?

Scale:

- Greater than 20 years
- 15 – 20 years
- 10 – 15 years
- 5 – 10 years
- 0 – 5 years

Cost-Effectiveness (sub to "Practicability")

Notes: The cost per unit of water in a given year. (To provide context: the current cost to the City is $--/ mg)

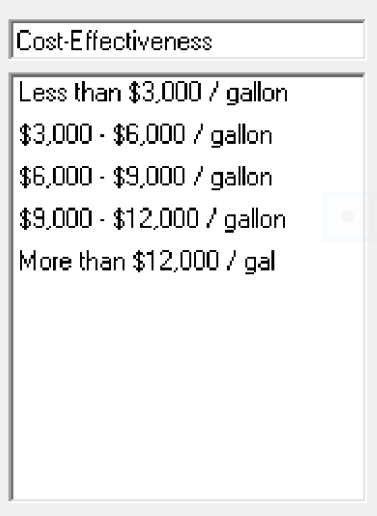
Note: Proposers do NOT need to offer this information. We'll get it from 'effectiveness' and 'cost' well enough for this round.

⇒ Question: If you invest in this proposal, no matter how small or large it is, how much reduction in demand or increase in supply do you get for the money invested?

Scale: [Rating Method: Direct]
Principal View - Numeric; Units - Default; Worst - 0.00; Best - 100.00

Value Function: Type - Linear; Slope - (+)

The scale above is very strange. No wonder you were getting hackles. Here's what it is supposed to be, with an 'm' in front of 'gallon'



The discussion for this was nearly identical to the one for 'effectiveness'

Acceptability (sub to "Practicability")

Notes: Community and political support, including community pride.
Note: Philip thought this scale rocked because, well, MCDS is weird. It isn't a survey. It is more about exploring and testing your own internal processes as you think about a problem. So we really want resonant, interesting, provocative scales that speak to you. That said, Philip is in Seattle and you are in SC, so think about whether you like this scale!

⇒ Question: How likely is it that this project will meet with public and political support such that it can actually be implemented?
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Broad, Deep Enth Support, Tepid Support, Indifference, Mild Distaste, Likely Active Resistance]
Value Function: Type - Linear; Slope - (+)

Will drop 'enth'. Pride in community's ability to solve problem and be a leader in the area goes into acceptability. Second group agreed.

Implementability (sub to "Practicability")

Notes: Characteristic of a supply project that relates to the siting and environmental and regulatory review processes or of a demand project that relates to need for incentives; voluntary adoption; development of rules, regulations and enforcement and acquisition of water rights.

⇒ Question: How few obstacles are there to accomplishing the promise of this approach? (Excluding social, political and funding obstacles which are addressed above.)
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [VSimple, Proven, Few Obst, Simple, Proven, Few Obst, Complex but Doable, Complex and Iffy, A Risky Morass]
Value Function: Type - Linear; Slope - (+)

Change bottom one to "Risky and Uncertain" ? No, maybe that isn't horribe enough. Need uncute version of "Risky Morass" that is worse than "Complex and Iffy" Or you could just leave it because it is my favorite scale of all time. Answer? "Not Implementable"

Include water rights here. Second group agreed.

Energy Intensity (sub to "Healthy Env't")

Notes: The degree to which a proposal will demand energy from cradle to grave: the making of component parts, the building or installation of materials or facilities including delivery systems, operation and maintenance as well as disposal. [this one will be hard to rate so I used a 3-point scale)

⇒Question: Taking the entire needs of this proposal cycle into account, from producing parts to implementation or
and operation and even disposal, how much energy will this approach require per gallon?
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Req Much Energy, Req Moderate, Req Little Energy] change to include improvement possibility
Value Function: Type - Linear; Slope - (+)

Ok, in an earlier iteration there were two appearances of this. One of those got subsumed under cost per first group and agreed to by second group, and it includes not only the O&M of an energy intensive approach, but also the cost of offsets.
Comment: At some point, in our wonkier future, we'll need to include energy savings from activities that get replaced by each project. In fact the second group said they wanted this scale to include this possibility and the next iteration of the model shall include that.

~~Impacts to Species~~Impacts to Environment other than Energy (sub to "Healthy Env't")

In the original version there was a "good for env't" subcriterion" and a "bad for env't subcriterion.' Saturday group wanted to lump and make a scale that when from bad to good. Next iteration will reflect that.

Notes: Extraction of water from the natural environment or disruption or destruction of natural ecosystems for aquatic, riparian or terrestrial species and marine wildlife can result in impacts to species. Rewrite to reflect lumping, emphasize "don't include Energy Intensity in this"

⇒ Question: How well does this approach ~~minimize impacts~~ reduce adverse impacts to species?
Scale: [Rating Method: Direct]
Principal View - Verbal; From Best to Worst - [Does not Worsen, Moderately Worsens, Sig Addnl Impacts] change scale
Value Function: Type - Linear; Slope - (+)

This is an example of a 3-point scale I tried on for size but request to add in "Improves Species Condition"—I'd then want to add another to keep our magic 5. (Rule of thumb: middle is twice bottom and half of top.) Definitely will be a 5 scale at least now that is lumped.

Carbon impacts etc must include marine wildlife

Draft after Saturday morning discussion

For later discussion: concern about cumulative impacts to marine wildlife if many desal plants in same littoral cell. (Montery Bay)

~~Environmental Benefits~~ this one lumped

~~Notes: Increases the degree to which the alternative improves the City's ability to support ecosystem adaptation to climate change.~~

~~⇒ Question: How much does this approach increase the City's ability to support ecosystem needs?~~
~~Scale: [Rating Method: Direct]~~
~~Principal View - Verbal; From Best to Worst - [Major Envtl Benefits, Much Envtl Benefit, Moderat Envtl Benefit, Some Envtl Benefit, V Little Envtl Benefit]~~
~~Value Function: Type - Linear; Slope - (+)~~

~~Ok, this one probably means "will we have the latitude to leave a lot of water in the stream for fish?" (or to irrigate riparian restoration etc) Two problems noted: one, there is a "common currency" issue when the underlying lever is "this makes more water". I am not saying it automatically has to come out, but this does need discussion. The second problem may be solveable with wording: having more water doesn't necessarily mean it goes to ecosystem support, so a phrase like "potential to" may belong in here.~~

~~Need a better distinction between moderate and some. I will get out my thesaurus!~~

Community was recast per discussion above

~~Adverse~~ ~~Community Impacts~~

~~Notes: Minimizes~~ ~~Reduces~~ ~~the degree to which the alternative would impact the community, e.g. through~~
~~noise, poor aesthetics, traffic impedence...~~~~extent to which the solution would facilitate extra growth, supports land use plannig growth (how growth happens instead of how much as previous phrase)~~

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~~⇒Question: How well does this approach minimize impacts to the community, such as construction noise or odor?~~ ~~Do we have to have a double negative?~~
~~Scale: [Rating Method: Direct]~~
~~Principal View - Verbal; From Best to Worst - [Lim Potential to Adv Imp, Mod Potential to Adv Imp, Sig Potential to Adv Imp]~~
~~Value Function: Type - Linear; Slope - (+)~~

~~This seemed lame to one of the commenters.~~
~~'Adv' does in fact stand for "adversely."~~
~~Do we need to distinguish between construction and long-term impacts? Might be less lame if it included long-term.~~

~~Positive~~ ~~Community Benefits~~~~Impacts~~

~~Notes: Establishes and maintains a strong, socially and economically viable community supporting basic human needs and values: food, water, warmth, security, shelter,~~

~~Adverse~~ ~~Community Impacts~~

~~Notes: Minimizes Reduces the degree to which the alternative would impact the community, e.g. through~~
~~noise, poor aesthetics, traffic impedence...extent to which the solution would facilitate extra growth, supports land use plannig growth (how growth happens instead of how much as previous phrase).~~

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~~⇒Question: How well does this approach minimize impacts to the community, such as construction noise or odor? Do we have to have a double negative?~~
~~Scale: [Rating Method: Direct]~~
~~Principal View Verbal; From Best to Worst [Lim Potential to Adv Imp, Mod Potential to Adv Imp, Sig Potential to Adv Imp]~~
~~Value Function: Type Linear; Slope (+)~~

~~This seemed lame to one of the commenters.~~
~~'Adv' does in fact stand for "adversely."~~
~~Do we need to distinguish between construction and long-term impacts? Might be less lame if it included long-term.~~

Local Jobs (sub to "Economic Security")

⇒ Question: Will the actual implementation of this approach be likely to support local jobs as it is constructed/brought online?
Notes: some approaches would be likely to create jobs for local, small businesses; others might be more likely to export the work to experts from outside the region.

Scale:

- Creates many local jobs
- Some local jobs
- Few or no local jobs

Water Security (sub to "Economic Security")

⇒ Question: Will implementation of this approach be likely to enhance water security [and the perception of water security?]?
Notes: When answering this question, please distinguish from the *amount* of water that would be created—that issue is already addressed in the "Efficiency" criterion. Instead, ask yourself whether this approach, when compared to another with about the same efficiency, is particularly good at supporting water security. [Is giving an example too leading?...]

Scale:

- Supports Water Security Particularly Well [except I won't have room for this]
- Somewhat Supports
- Is harmful to Water Security