Comments on "Methods for evaluating scenarios: Reconciling quantities and values"

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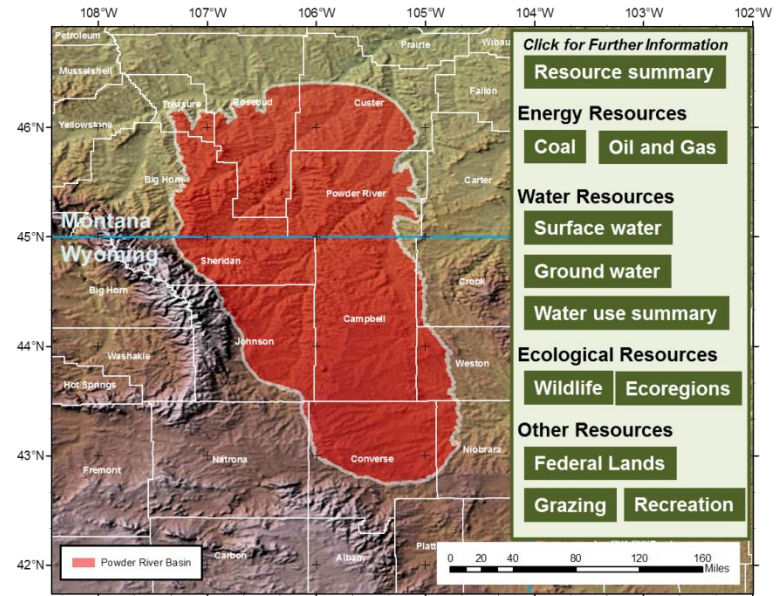
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Powder River Basin
Integrated Multi-Resource Analysis (MRA)
Proof-of-Concept Study

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U.S. Department of the Interior
U.S. Geological Survey
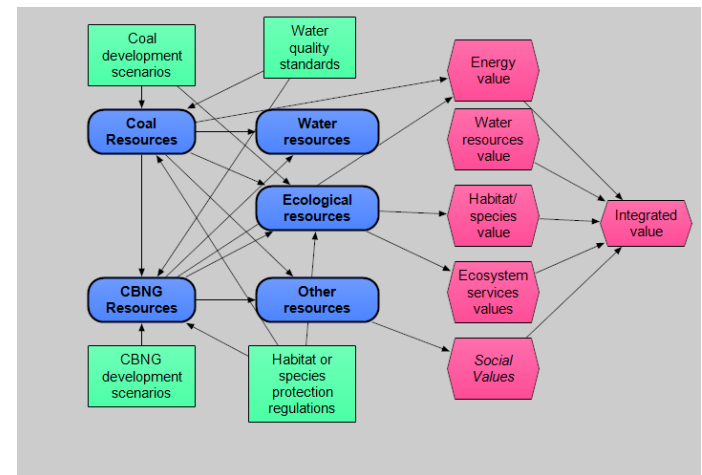
The PRB MRA

Component of MRAs	PRB MRA elements
Integrated information on current status of multiple natural resources (including ecosystem services)	A regional inventory and assessment of multiple natural resources, including summary-level descriptions of the resources suitable for different audiences
Models describing the interrelationships among collocated natural resources	Conceptual models and analyses that address the relationships between the natural resources in the region
Analyses evaluating the impacts and tradeoffs to the natural resources in biophysical and socio-economic terms	**Resource valuation and economic implications of changes in resources under different future scenarios**
	A "portal" to access the information (or multiple "portals" but with all resource information available through each portal)

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What are the most effective approaches for measuring and comparing values provided by multiple resources within a landscape-based approach?

- Involve decision-makers and stakeholders early and often

- Allow stakeholders to specify their own values
    - Help them do that consistently and logically

- Acknowledge difficult to quantify values

- To the degree possible, separate "technical" questions (e.g., biophysical outcomes) from "value" questions

- Maintain transparency in any aggregation of value: no black boxes

How can decision analysis and other quantitative methodologies best be integrated into a multi-resource analysis approach?

- Use the DA process and structure to help define the *scope* of the MRA
- Use uncertainty quantification (where relevant and possible) to estimate and communicate the current state of knowledge about:
  - Extent of resources
  - Biophysical relationships among resources
  - Evolution of those resources under scenarios of interest
- Use multi-attribute utility approaches
  - To help decision-makers and stakeholders clearly articulate the values associated with natural resources
  - To address the tradeoffs between those values
  - Possibly, as one way to combine different measures of value

What steps are necessary to link biophysical quantities to values, and to ensure the biophysical measures or models are consistent with the quantification of value?

- <u>Start</u> with decision-maker and stakeholder values
- Identify values linked to a decision framework and to scenarios of interest
- <u>Then</u> identify biophysical measures that relate to those values
- Document those relationships
  - Use this structure communicate and manage scope, and to maintain transparency throughout