

Key Points on IRP

- “Consumers and shareholders are better off with an open, efficient process that has an objective, is focused on customers, factors in all options, weighs risks, considers many scenarios, [and] helps [the] utility succeed in implementing or adapting the least cost plan”
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Compliance Review & Enforcement

- Compliance review standard
 - *Maintain status quo*: no change necessary
 - *Change*: Commission may acknowledge or accept (definitions and implications vary)

Commission Compliance Actions

- Potential compliance actions could include:
 - Check to ensure compliance with requirements
→ issue acceptance or acknowledgement
 - May decline to accept/acknowledge IRP in whole or in part
 - May choose to reject portions of the IRP, comment on the plan, or identify concerns the utility needs to address
 - Utilities may be asked to revise portions of the plan and resubmit

Plan vs. Process

- Accept/acknowledge plan and/or process
- *Plan and process option:* e.g. Commission finds the IRP to reasonably prioritize the timing and type of resource actions given the inputs, methods, and decision making rationale provided and available at the time
- *Process only option:* e.g. Commission finds the IRP process to be reasonable given the inputs, methods, and decision making rationale provided and available at the time

Relation to Prudency

- IRP use in other proceedings
 - Use in prudence reviews (e.g. in rate cases, some states check utility's actions relative to their IRP action plans and assess whether deviations from the plan were adequately justified)
 - Base analysis for resource proceedings: should utility's bear the burden of proof that proposed resource actions are consistent with IRP and must fully explain and justify inconsistent actions?
 - To avoid confusion, common to define acceptance/ acknowledgement as not pre-approving any action

Enforcement Actions

- Enforcement action menu:
 - Deficiency letters
 - Investigation
 - De facto: e.g. if cost recovery depends on accepted/acknowledged IRP, adequate compliance incentive exists
 - Others?

Your Thoughts?

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Importance

- Risk and uncertainty management can have profound implications for:
 - Safety and reliability of service
 - Average rates and volatility of rates
 - Financial health of utilities
- **Greater need coupled with greater ability**
 - Very difficult but unavoidable: path of least resistance is not acceptable

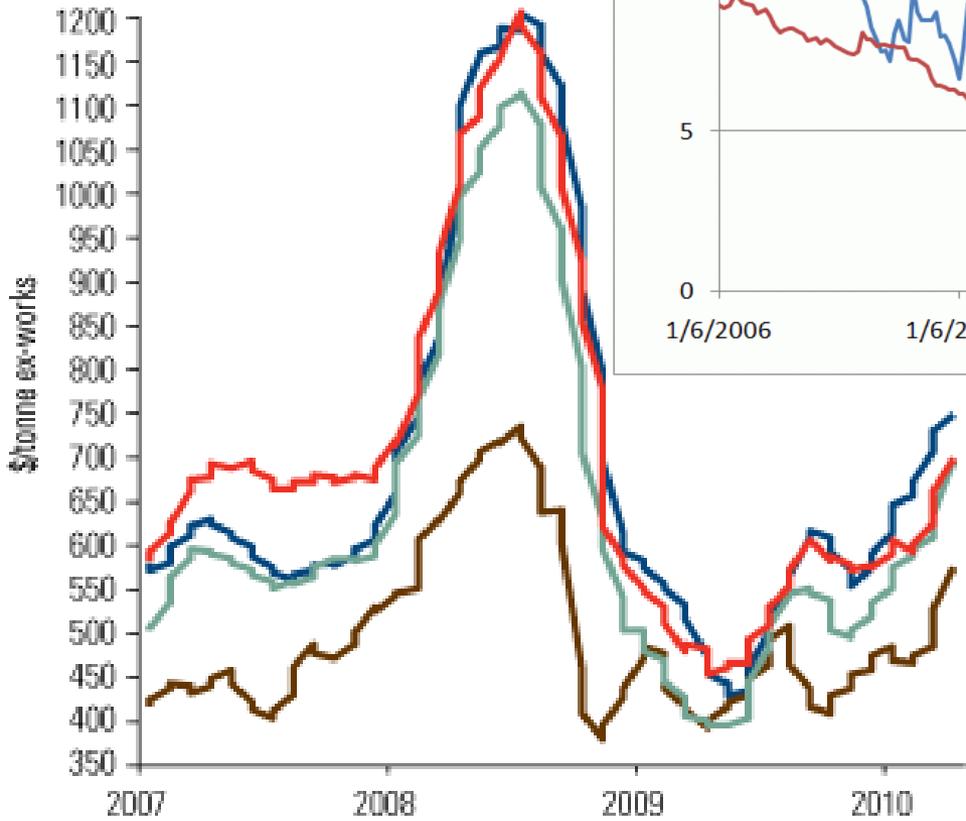
Risk vs. Uncertainty

- Risk = probability x consequence
- Risk vs. uncertainty
 - Both have well-defined consequences, but the knowledge of their likelihood (pr) differs
 - Probabilities of different outcomes can be assigned for risk but not for uncertainty
 - Example: gas price forecasts have quantifiable risk, but we cannot assess the pr of potential federal regulation of fracking (an uncertainty)

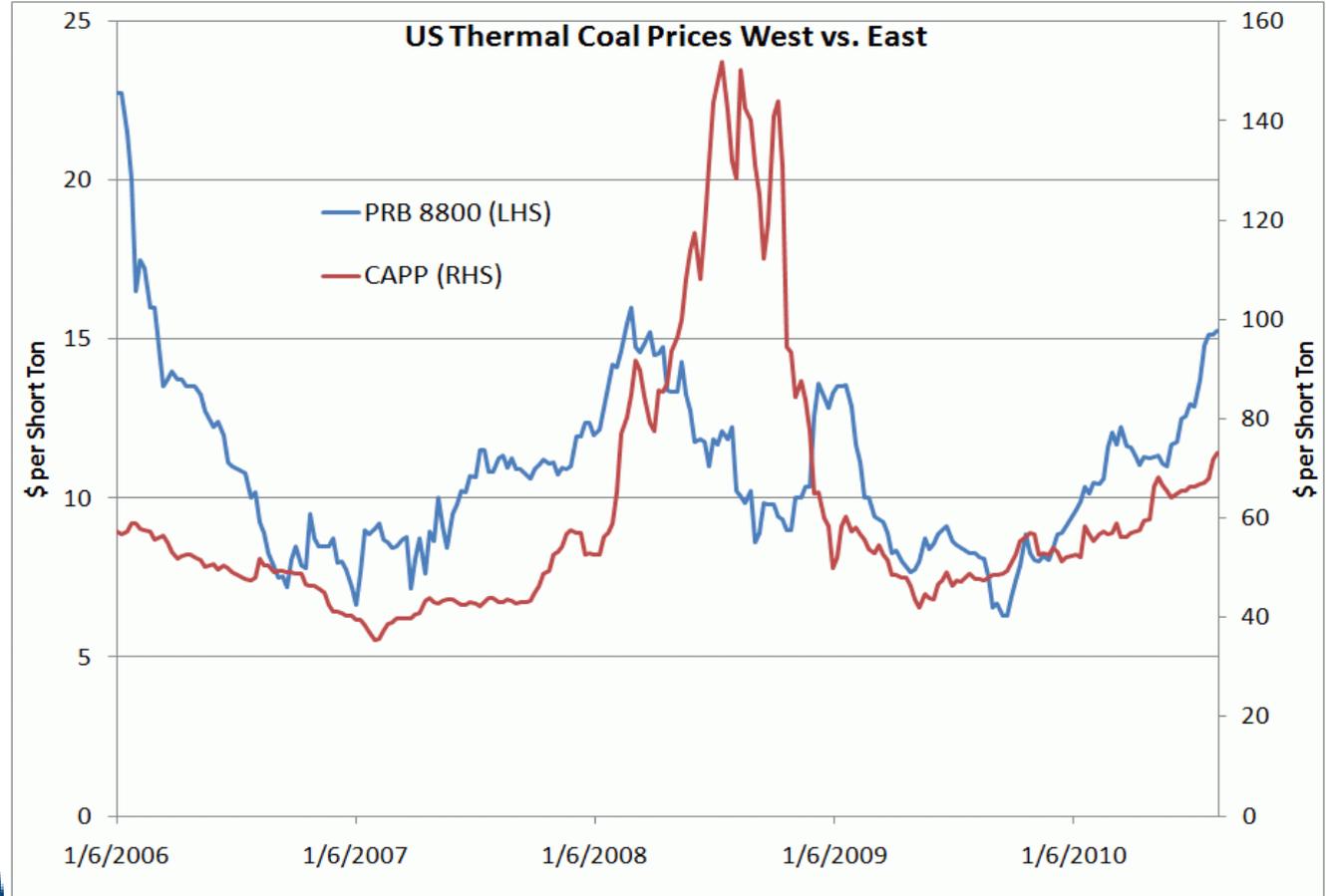
Least vs. Reasonable Cost

- Least-cost principle: cornerstone of consumer protection and regulation in utility ratemaking
- Past decade was nightmare for finding the least-cost mix of resources → emphasis on risk/uncertainty
 - Gyration climate policy, wildly volatile gas prices, and low-balled nuclear construction costs
- Reasonable cost or cost-effectiveness planning
 - Account for risk and uncertainty to insulate plan against the unknown (includes buying time)

Recent annual
fluctuations
around 2-3x!



Source: WSD, Macquarie Research, April 2010



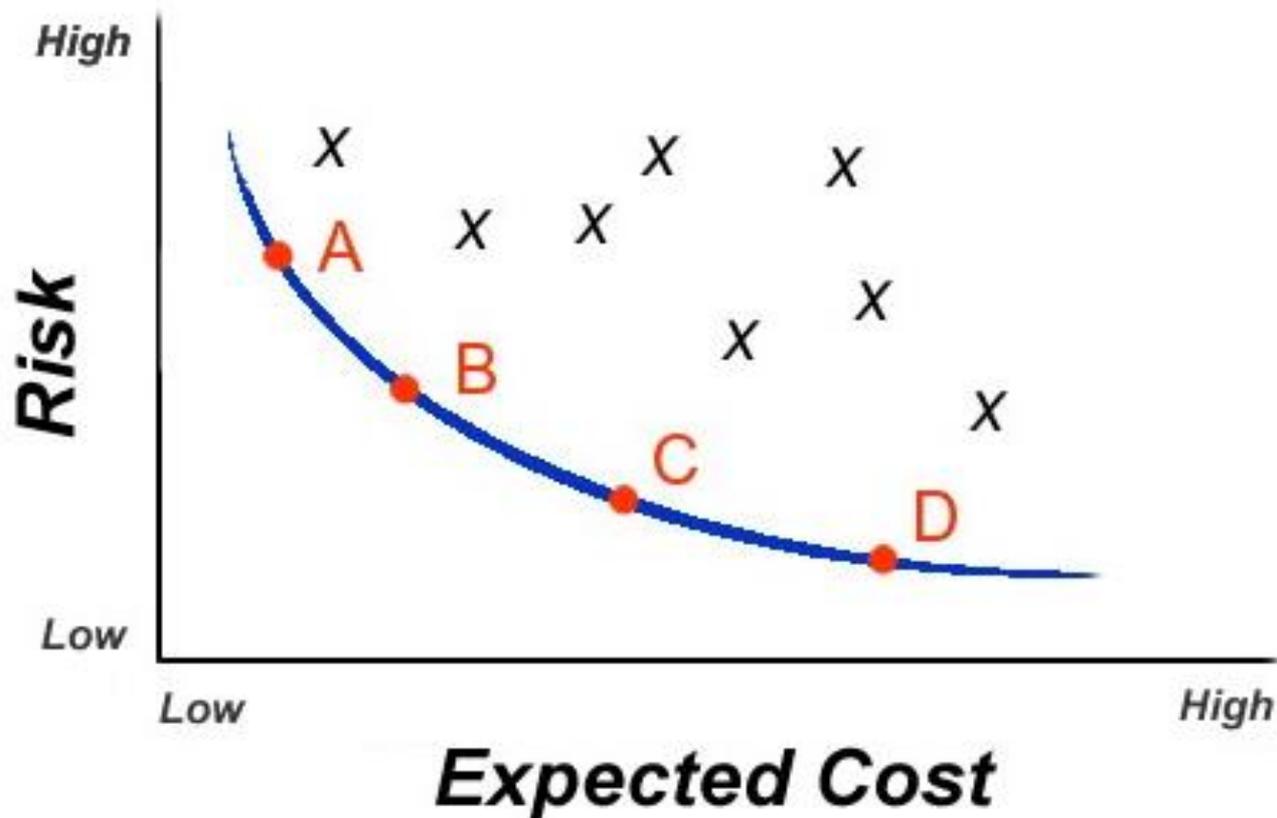
Source: Bloomberg

- US domestic
- Chinese domestic
- World export price
- Europe

Optimizing Cost and Risk

Resource plan trade-off curve (“efficient frontier”)

– Need to determine willingness to pay to reduce risk



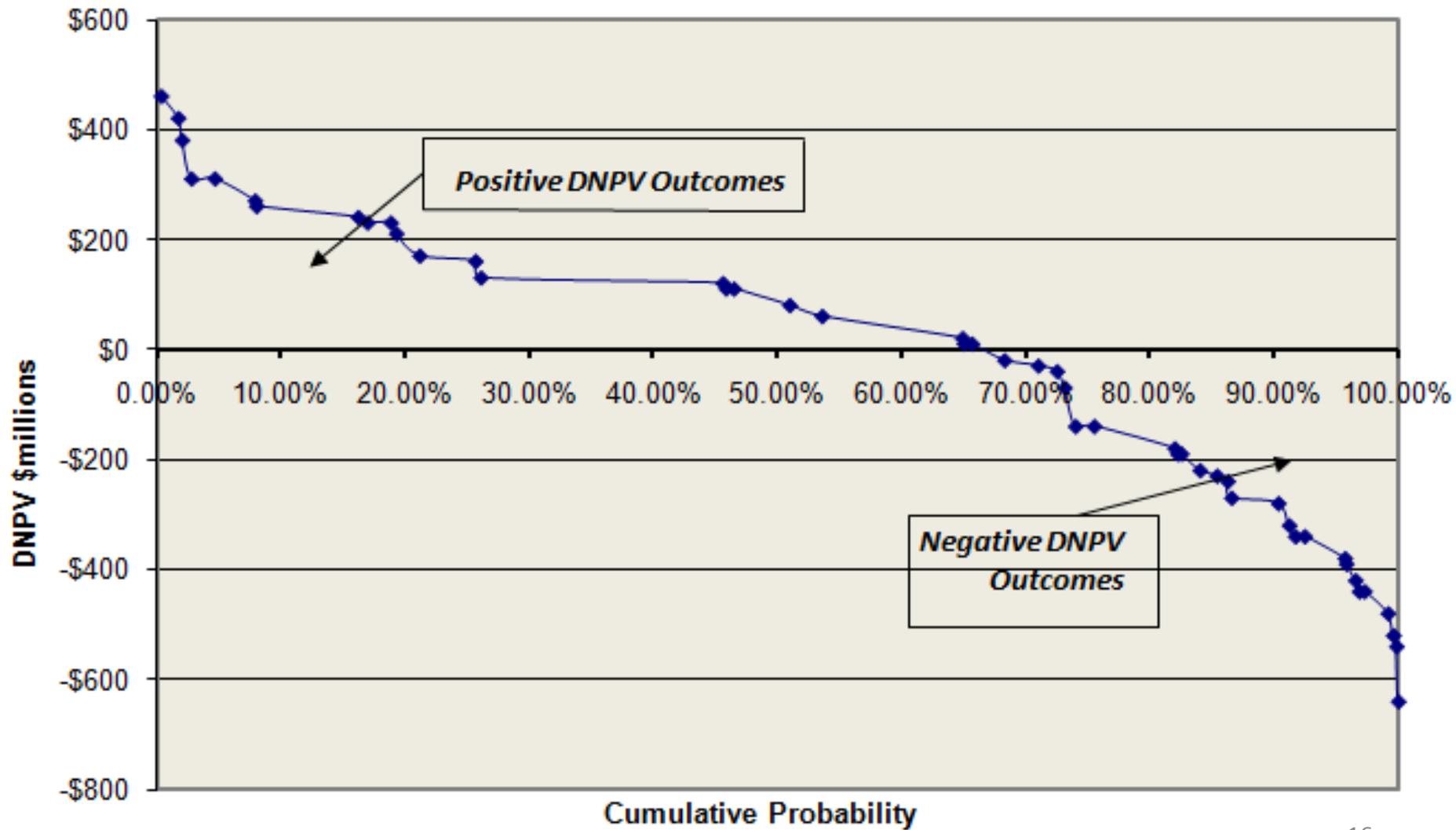
Contemporary Methods

- Sensitivity analysis: easiest first-step
 - Common critique: difficult to test for robustness
 - Does not assign pr → gives all cases equal weight
- Examples of contemporary methods:
 - Treating risk with probabilities
 - Uncertainty scenario planning
 - When pr cannot be assigned

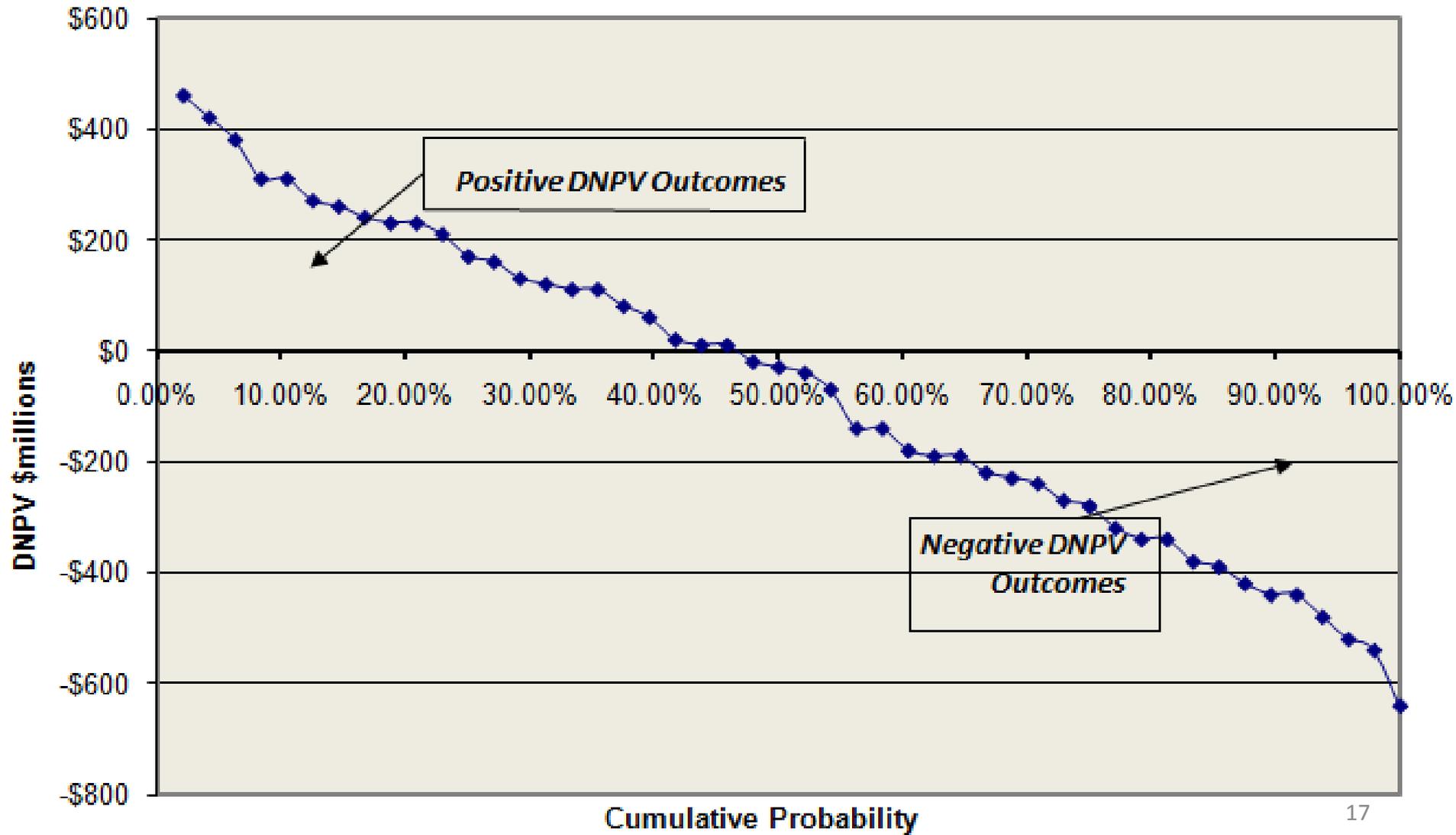
Using probabilities

- IRP with probabilistic analysis
 - Assign probabilities for assumptions
 - Been applied to risks including fuel prices, capital costs, financing costs, and unit type performance/reliability
 - Finds probability of each case (combinations of assumptions)
 - Quantifies expected value of a resource's DNPV
 - Develops a DNPV distribution curve
 - Gives insight into best and worst case and chances they occur
 - Goes beyond just counting cases → partial risk-informed judgments

Distribution Curve



Distribution Curve – equal pr



Probabilistic Challenges

- Two major challenges:
 - Selecting assumptions and building cases
 - Assigning probabilities to each assumption
 - Is information adequate?

Scenario Planning

- Recognizes unpredictability of uncertainty
- Focuses on the plausible not the probable – imagining different futures
- Creates several “scenarios” of the future – each telling a different story
- Looks for a single set of resources that produces an acceptable result in each scenario
 - “no regrets” or “uncertainty-managed” solutions vs. cost minimization

USP in Practice

- Still uncommon practice in power sector, still in introductory stage
 - Hawaii (implementing)
 - TVA (practicing in IRP)
- Has intuitive appeal, but will be challenging to integrate into IRP process
 - Might this work as a secondary objective? i.e. a way to stress-test candidate portfolios in the plan selection stage

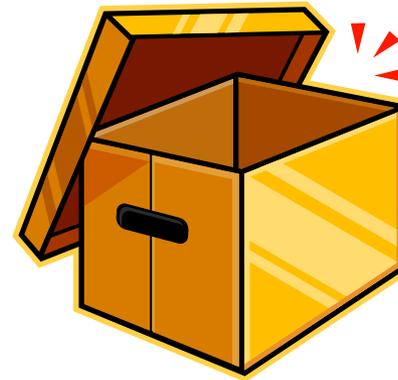
Your Thoughts

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Stakeholder/Public Participation

- How to open the “black box” of IRP?



- Most dominant trend in recent national wave of IRP reform
 - RAP identified as most important part of IRP process

Input Pathways

- During plan development
 - Appointed advisory groups (e.g. ND)
 - Utility-sponsored workshops (e.g. UT)
 - Consensus-collaborative process (e.g. MN)
- During Commission compliance review
 - Public comment period (e.g. WA)
 - Formal or informal hearings (typically w/o litigation) (e.g. MT, MN, OR)
 - Litigated hearings (e.g. CA, NV)

A New Forum

Traditional	Public/stakeholder-engaged
Adversarial	Collaborative
Formal	Informal (more tech-to-tech staff communications) in development stage
Final review	Incremental and final review
Black box development	Transparent development

Who's Involved?

- Most states target intervenors
 - Some other civic groups or leaders (wide range)
 - How can the public be made aware?
- Informing the broader public
 - Can publicly notice and open IRP meetings to the public (also has drawbacks)
 - Suggestions include locating meetings on rotational basis inside utility's service territory
- Consider: some public meetings (e.g. first and last) with other meetings limited to technical stakeholder group

Benefits

Outputs	Outcomes
Constructive (vs. combative) dialogue	More substantive discourse Trust-building
“Narrows the margin of dissension”	Conserves litigation resources
Routinized stakeholder interaction on dynamic issues	IRP rule “ages” better: less prescriptive need Enhances risk and uncertainty treatment
Incremental review with regular stakeholder-utility communications	Easier for stakeholders to review (vs. final only) More thorough review
Transparency and stakeholder buy-in	Improved external relations and image
Informative “cross-fertilization” of issues across stakeholders	Inc. stakeholder understanding, resulting in higher quality analyses in other contexts
Utility receives signals and critiques in developmental stage	Utility more responsive to critiques and mitigates chance IRP has compliance deficiency Stakeholder comments more valuable than final-only review (stakeholder empowerment)
Higher quality IRP	Higher quality resource decisions (also driven by higher quality intervention); credit rating agencies view more favorably

IRP Information: Planning Your Energy Future - Together

Meeting materials

August 2011

Recommended reading:

- ▶ [Hidden Costs Of Energy: Unpriced Consequences of Energy Production and Use \(nap.edu\)](#)

May 2011

- ▶ [May 18, 2011 presentation slides and meeting agenda \(.pdf\)](#)
- ▶ [May 4, 2011 presentation slides and meeting agenda \(.pdf\)](#)
- ▶ [May 4, 2011 meeting summary \(.pdf\)](#)

Recommended reading:

- ▶ [Press release: A Bright Spot for Solar: Berkeley Lab Study Finds that Photovoltaic Systems Boost the Sales Price of California Homes \(newscenter.lbl.gov\)](#)
- ▶ [The full report: An Analysis of the Effects of Residential Photovoltaic Energy Systems on Home Sales Prices in California \(eetd.lbl.gov .pdf\)](#)

April 2011

- ▶ [April 6, 2011 presentation slides and meeting agenda \(.pdf\)](#)

Recommended reading:

- ▶ [American Council for an Energy-Efficient Economy \(ACEEE\) study on energy efficiency in Texas \(.pdf aceee.org\)](#)
- ▶ [Comments/critique on above ACEEE study by David Thompson of our IRP group \(.pdf\)](#)

Drawbacks

Concern	Response
Process removes utility responsibility	Advisory role would not Consensus-collaborative could
Resolving disagreements in informal setting	Advisory: consensus need not be achieved Consensus requirement presents challenges Use of a moderator
Confidentiality concerns and/or flood of data requests	Data request issues in some other states but no confidentiality problems Processes can be streamlined
Requires more utility and stakeholder resources up-front	Conserves them in litigation Conserves them for reviewers by displacing time spent on final review Process self-governs Resource-strapped stakeholders selectively participate
More IRP entities in Indiana than most other states, which may strain resources of stakeholders that review all IRPs	Could adjust requirements (e.g. limit entities required to participate, stagger IRP cycles)

Final Thoughts

- All PUC and utility evaluations we are aware of have considered the process “worth it”
 - Some utilities do so regardless of requirements (voluntary action)
- Leading advice from utilities for utilities initiating this process: provide refreshments!
- Process only successful with stakeholder buy-in... we want your opinion!

Your Thoughts

- Let's review the overarching pros/cons and assess the pros/cons of particular features
- Can we envision this working in Indiana, how?

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Contemporary Issues

- Conditions can change in a matter of months that alter IRP outcomes and action plans
- New era has increased risks and uncertainties
 - E.g. regulation, markets, and technology

EEI: Controlling Resource Risk

- ***Develop consensus resource strategies***
- ***Institutionalize regular communications***
- Provide regulatory commitment
- Support new construction
- Understand implications of risk management

Dynamic Role of Regulator



All risk & uncert. cannot be anticipated by regulators or intervenors → create company culture that emphasizes risk & uncert. management

Requires:

- High-level buy-in
- Full institutionalization
- Addresses risk to all stakeholders, not just shareholders

Handling Dynamic Issues: Options

- Utilities could revise their short term action plans in IRP-off years
 - Could provide an annual update on how the utility is affected or will handle such issues
 - Could host a workshop to gather stakeholder input
- Commission could host a periodic contemporary issues meeting
 - Perhaps a general tech conference into particularly important, evolving issues
 - Outcome could influence utilities' IRPs or annual updates

Your Thoughts

- What are the pros/cons of these potential approaches?
- How else can we ensure utilities and the IURC are adequately responsive to dynamic issues?