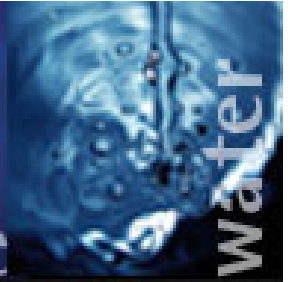




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Market Challenges and Barriers to AMI Adoption

Mark Gabriel

Positive Energy Directions

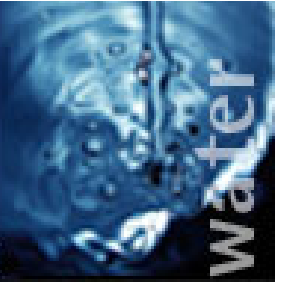
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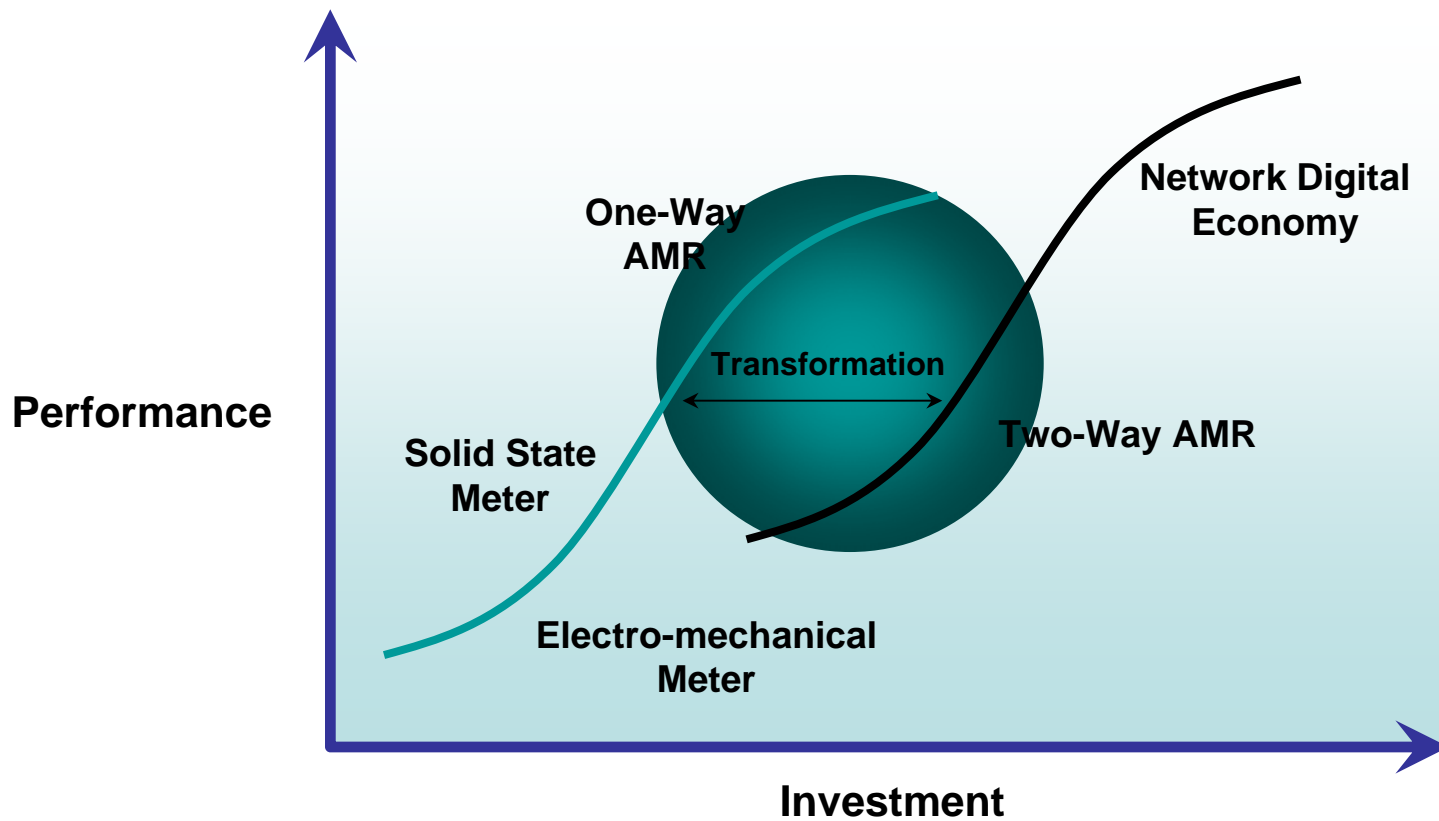


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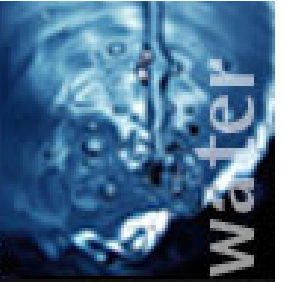
The market transition in AMR/AMI





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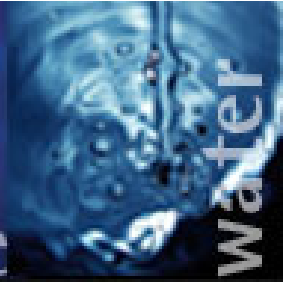


- Barriers to AMR/AMI continue despite market forces aligning in support
 - “Terminator” (risk)
 - Business case BINGO (risk)
 - Regulatory gamble (risk)
 - “Who knows what evil lurks...” (risk)
 - “Mom loves you more” (risk)
 - “Bring me a rock” (risk)



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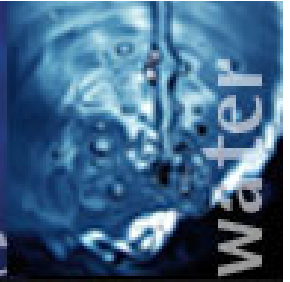
- Bring me a rock
 - Lack of clearly defined vision
 - Unarticulated technology path
 - Unclear system migration
 - Past failures



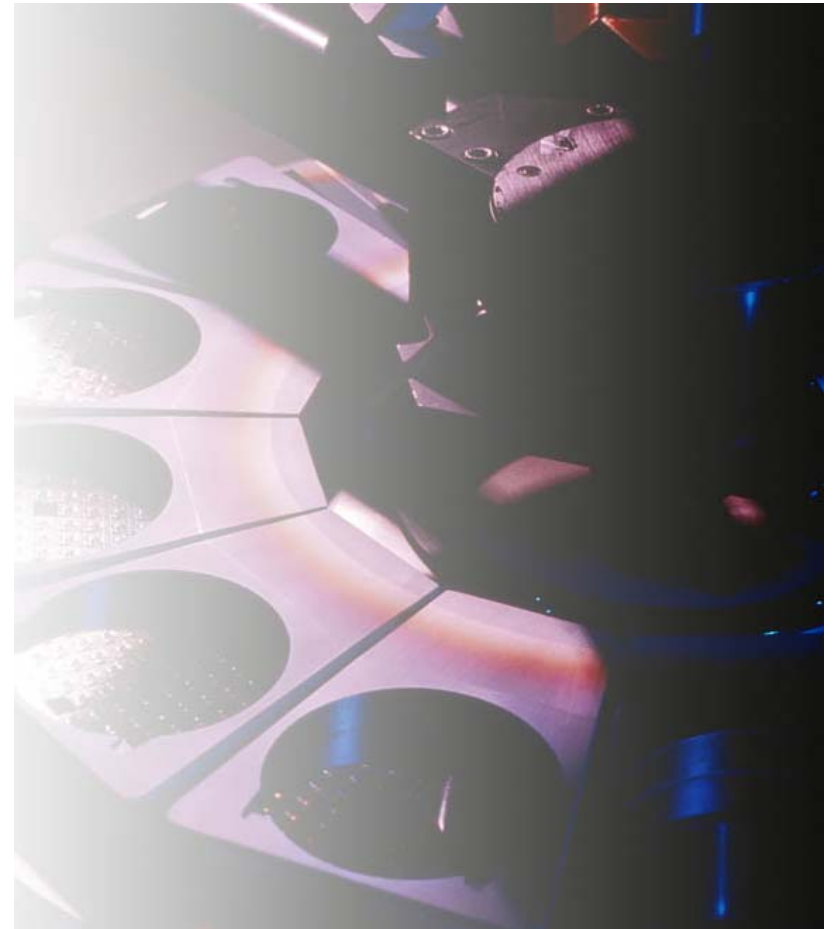


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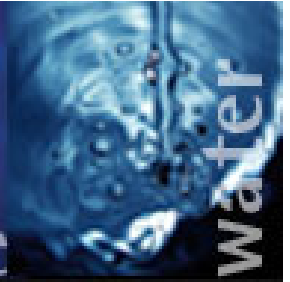
- **Terminator:**
Fear of technology
 - Technology failure potential
 - Cost overruns
 - Impact on system operations
 - Lack of processes (or fear of new process)
 - Reward system





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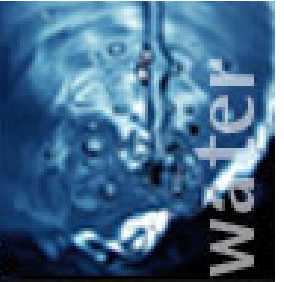
- Regulatory gamble
 - Uncertain regulatory outcome creating the potential for unrecoverable investments
 - Trade-off quandary
 - Retroactive rate making
 - After the fact prudency reviews





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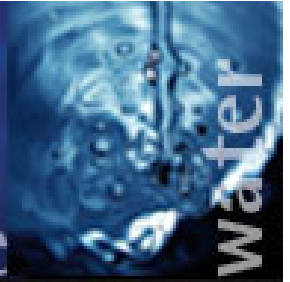
- Business case BINGO
 - Pure financial considerations
 - Focus on immediacy of payback
 - Narrow definitions of cost effectiveness
 - Difficulty in quantification
 - Inability to predict future perfectly





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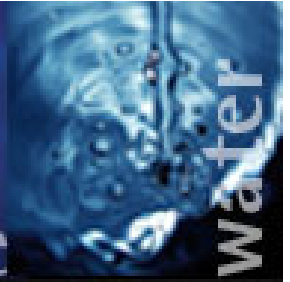


- Mom loves you more
 - Competition for scarce financial resources
 - Internal dynamics
 - “Its just metering”
 - Fear of system impact
 - Ignorance of system impact

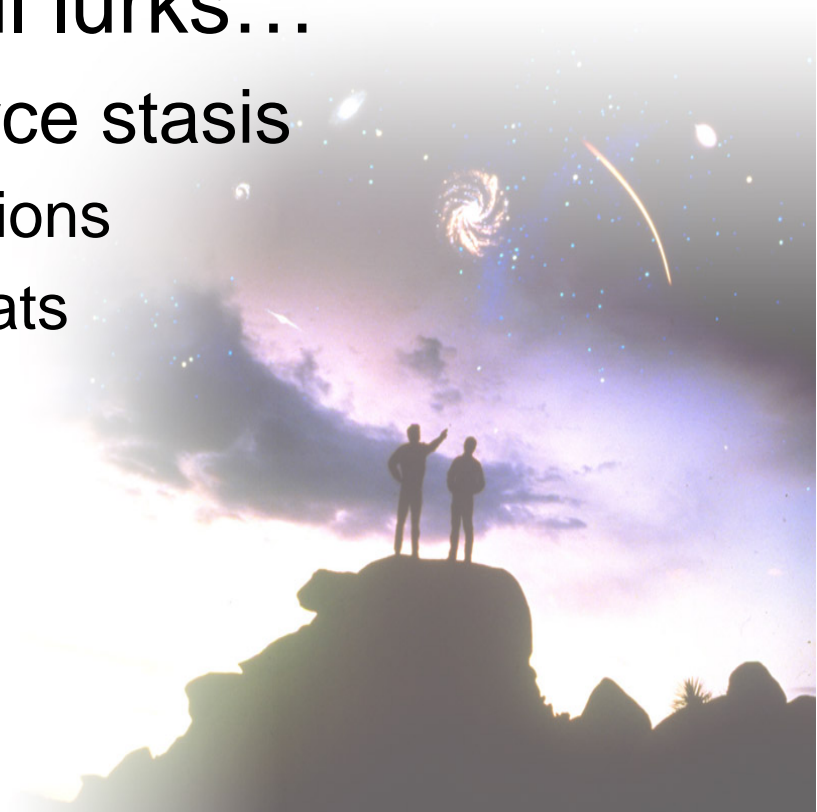


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- Who knows what evil lurks...
 - Market forces reinforce stasis
 - Mergers and acquisitions
 - Municipalization threats
 - Legislative mandates
 - Political worries
 - Competition





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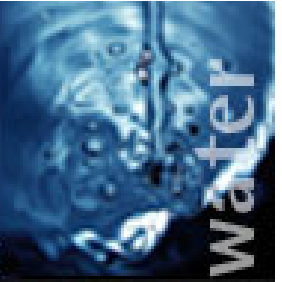
Trending and decisions

- Four factors establish the potential playing field for the technology decision
- Depending on the “filters” i.e. desired system operational benefits, choices are made in technologies
- Trend in the marketplace is toward advanced systems with future potential expansion but this is not universal
 - A number of simpler, one-way drive by AMR systems are being installed
 - Systems are being deployed with a “future proofing” strategy
 - Existing AMR is being upgraded

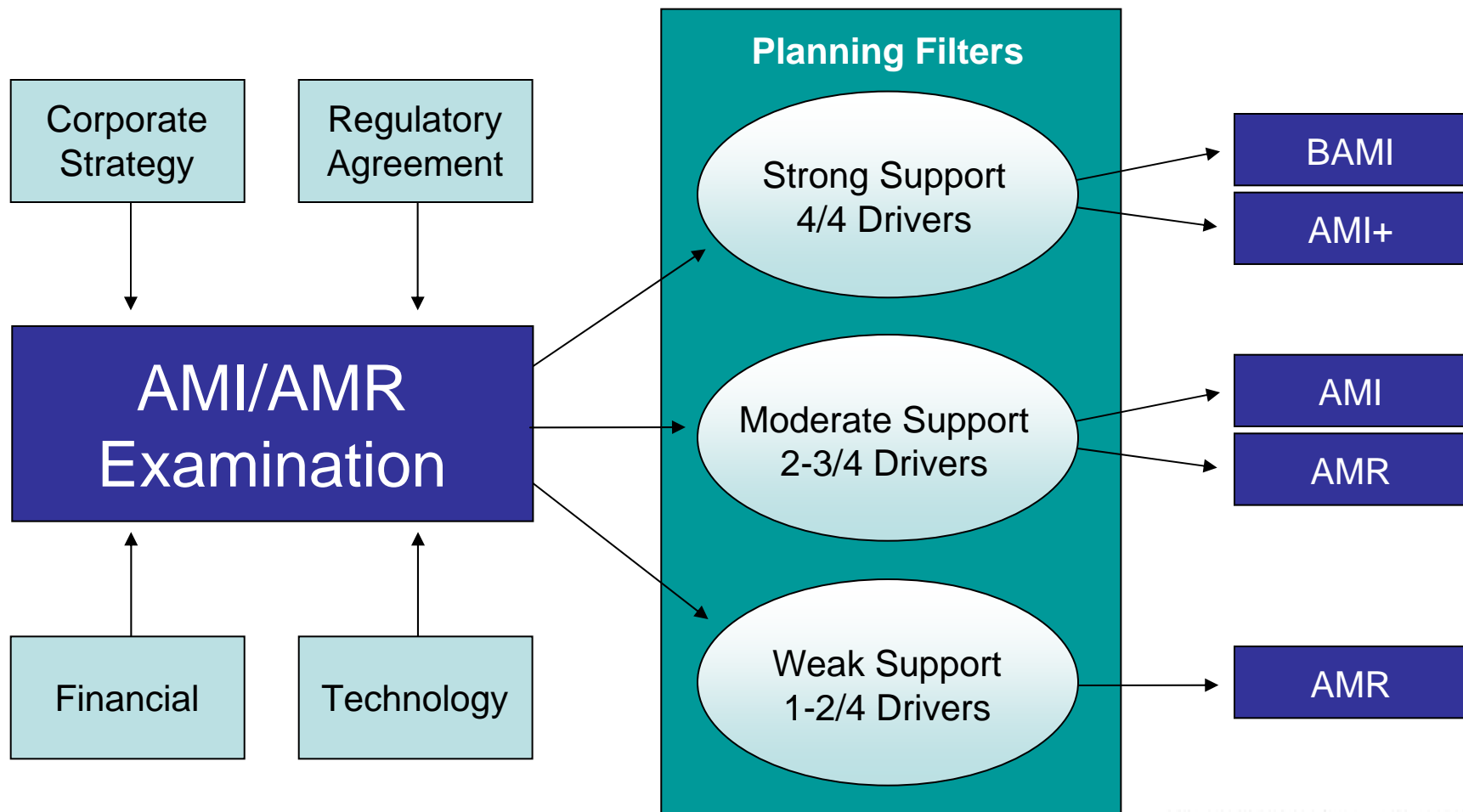


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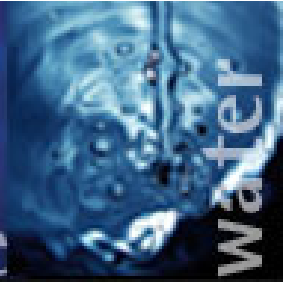
Four drivers impact technology choice



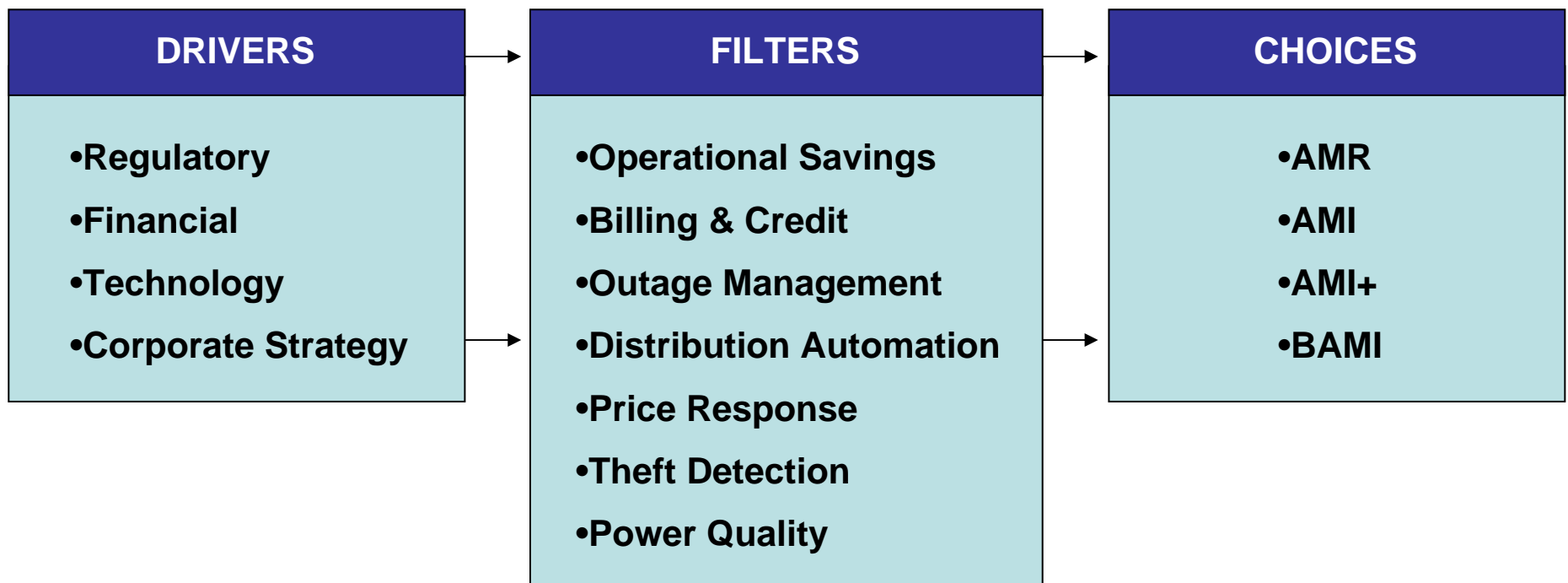


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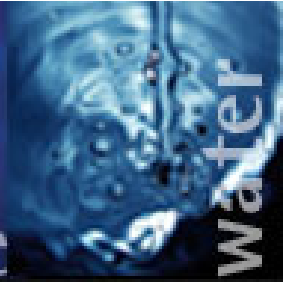
Drivers fed through filters lead to choices





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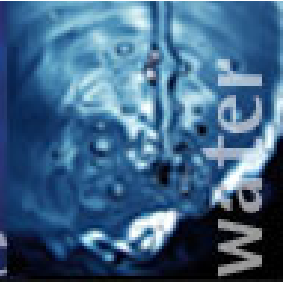
Strategic choices drive decisions

Strategy	First Cost	Capital	Technology
Risk	Low (obsolescence)	Moderate (scale)	Moderate (functionality)
Technology	State of the Art, circa 2000	State of the Art circa 2006	State of the Art circa 2008
Potential Benefits	Low	Moderate	High
Technology Choice	AMR	AMI	AMI+



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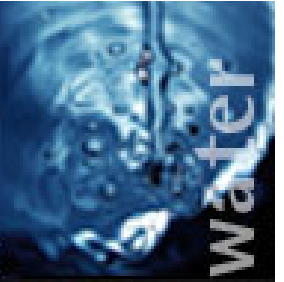
Ameliorating the barriers:

- Critical to overcoming objections is understanding financial considerations over and above any business case specific to AMR/AMI
 - Utility finances
 - Returns on assets
 - M&A positioning
 - Competing infrastructure investment needs
 - Vision for the company's future
- Regulatory certainty and support is a key deciding factor
 - Environment can both foster and hinder technology choices



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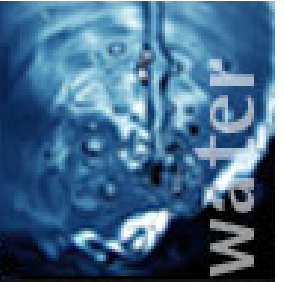
Lessons learned

- *Management of regulatory issues.* While pre-approval is not always an option in some jurisdictions, education and alignment of regulators, interveners and state officials is a key.
- *Clarity of strategy.* Conflicts can arise when corporate strategy is not sufficiently robust nor supported by the rank and file.
- *Financial considerations.* Numerous business cases have been built on the simpler aspects of AMR/AMI deployment which may not speak to the broader benefits that may accrue to the utility.
- *Technology philosophy.* Companies with a shared and planned vision of technology as well as willingness to adopt technology as well as take some risk have a higher chance of successful system deployments. Early adopters have found savings and benefits to advanced systems and are now seeking ways to further those programs.



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