

# Revised Economic Model: Water Loss Performance Standards

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# Released Reference Documents

## Rulemaking

- Proposed regulatory text
- Initial Statement of Reasons with Economic Impact Analysis

## Economic model

- Revised draft economic model
- Draft guidance for model and adjustments
- Summary of changes from previous version

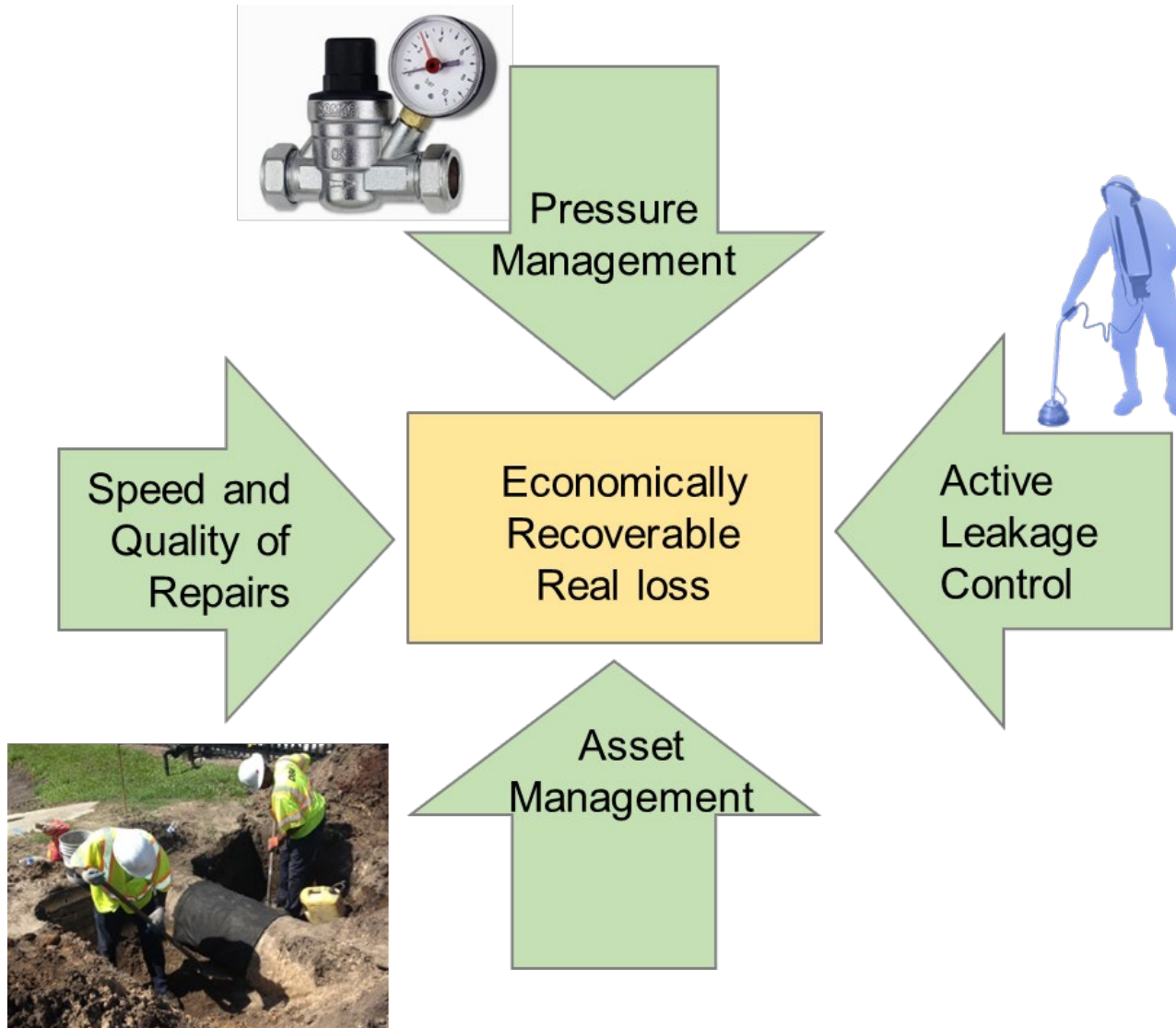
## Regulatory proposal

- Fact Sheet on proposed regulation
- Proposed water loss standards
- Questionnaires: Data quality, Asset management, Pressure management
- Alternative compliance pathway (Offramp) - Criteria

# Draft Economic Model and Inputs

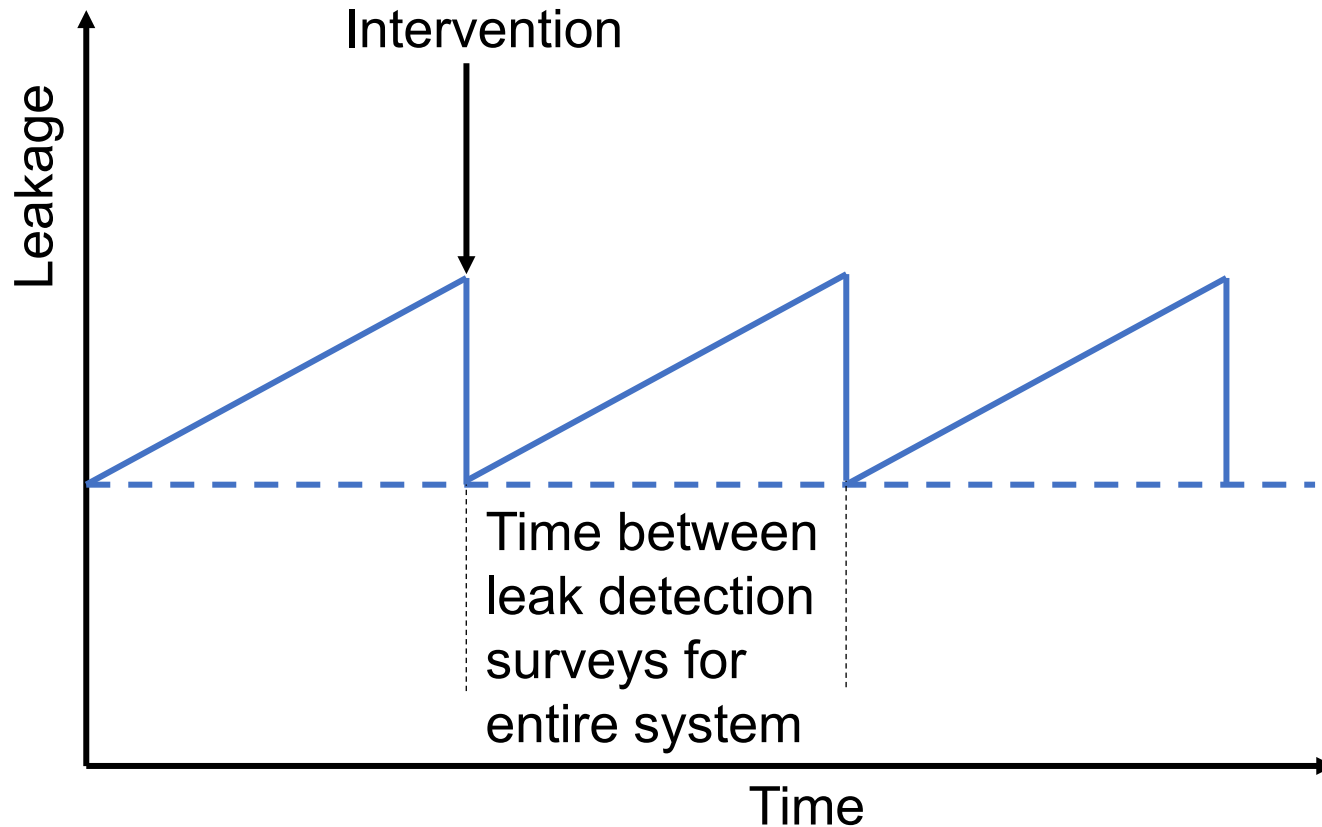
- Revised to address comments to version released on April 13, 2020 and customized inputs further
- Peer review of economic model in process
- Suppliers have the option to:
  - Discard one outlier from baseline real loss
  - Provide supplier-specific data and justification during comment period
  - Request to adjust input values for economic model due by July 1, 2023
- All inputs supplier-defined except discount rate, life cycle timeline and rise in price of water

# Key Consideration 1: Leakage and Available Approaches



- Background leakage
- Reported leakage
- Unreported leakage

# Key Consideration 2: Economic level of leakage



## AWWA Methodology

### assumption:

- Only background leakage remains after intervention – No backlog

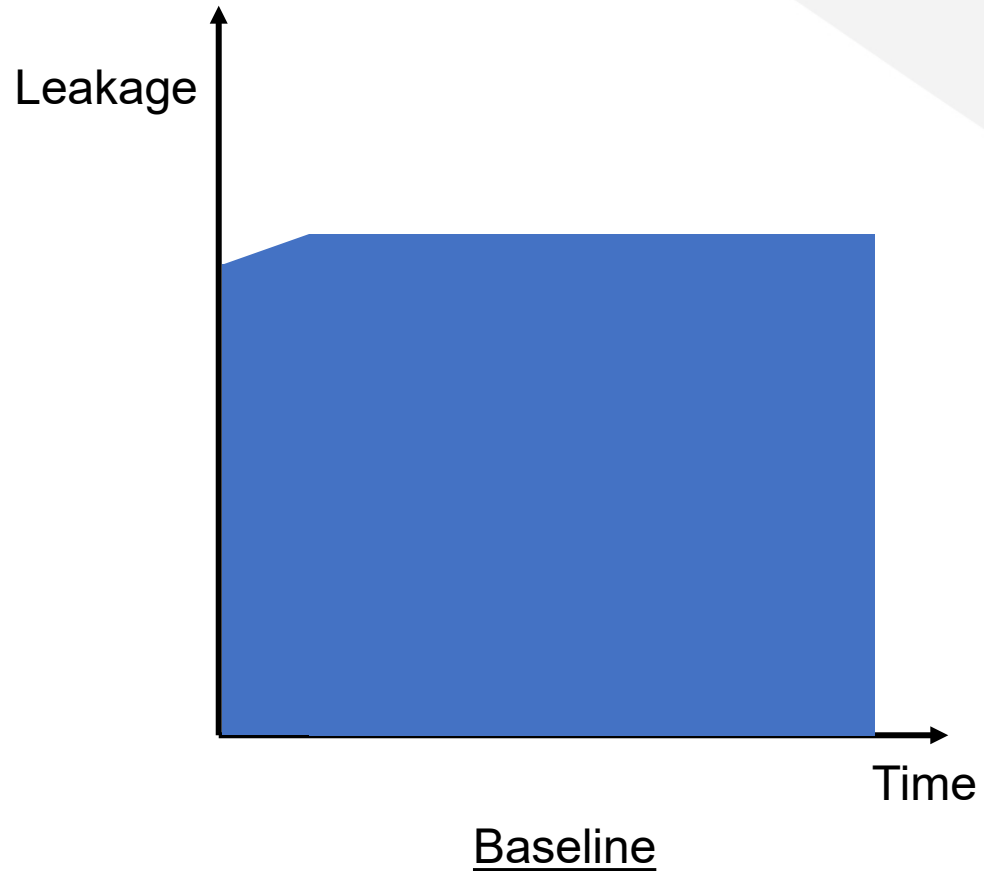
### Need to consider:

- Steady state v/s backlog
- Repair costs
- Lifecycle cost accounting

AWWA methodology: Based on rate of rise of leakage, unit cost of leak detection and marginal cost of water



# Water Savings - Benefits

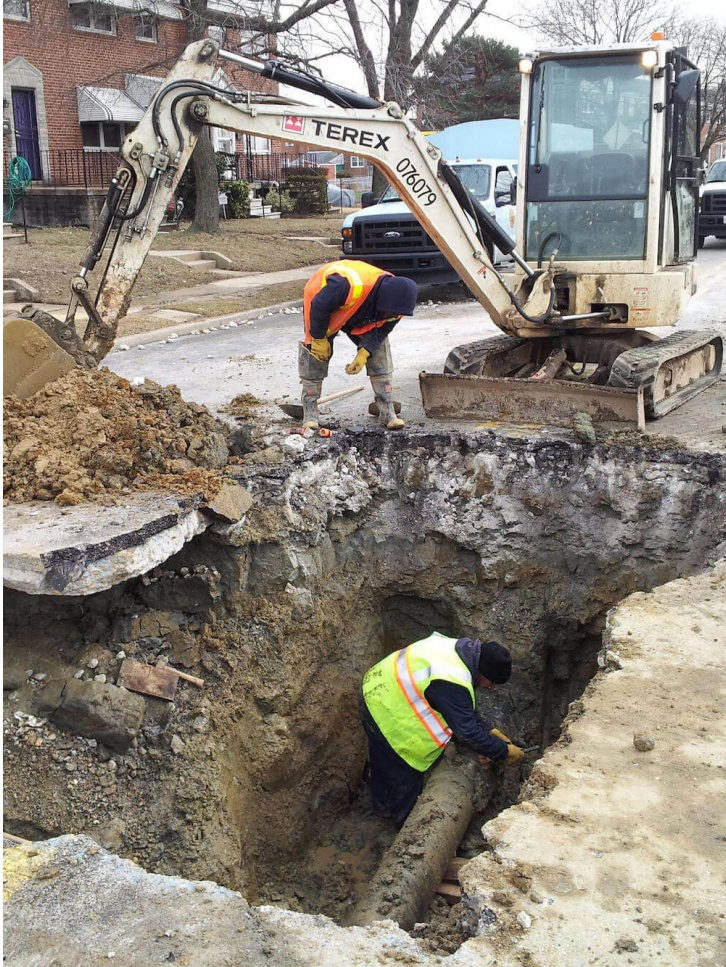


Intervention v/s No intervention

Baseline: No intervention, business-as-usual

- Rate of rise considered only till first month of first survey for baseline
- Water loss in first month equal with or without intervention as surveying begins
  - Water saved in first month is zero
- Beyond the first month, baseline water loss considered to be constant

# Draft Economic Model - Revisions



## Leakage profile

- Reported leaks
  - Mains and service connections and laterals
  - To include lower flow reported leaks
- Unreported leakage
  - Number of unreported leaks
  - To consider smaller leaks
    - more leaks to find, higher repair cost



# Draft Economic Model - Revisions

## Costs

- Cost for leak repair for service connections and laterals added
- Unit average cost of leak detection corrected
  - \$595 per mile from \$605 per mile previously
  - Higher end of the range
  - Estimate included detection and pinpointing
  - Upfront, maintenance, administrative costs included
  - Additional reference data added to model

# Draft Economic Model - Revisions

## Benefits

- Marginal avoided cost of water converted to present value
  - \$1093 from \$1126 per acre-foot previously
- Average annual rise in price of water corrected
  - 5.9% from 5.6% previously
  - Historical year data correctly included
  - Marginal price for 2020 included



# Model Demo

# Key Takeaways

- More customized model inputs
  - Additional system-specific leakage inputs
- Standard is sensitive to:
  - Number and volume of leaks
  - Type of leakage – Detectable?
  - Rise in leakage
- High leakage and high reduction
  - High apparent loss or red flags in audit

# Key Takeaways

- **Benefit-cost assessment**
  - Checks feasibility for reducing losses
  - Key inputs: Unit costs and Value of water
- **Per economic model using default values and current baseline real loss:**
  - All but 21 suppliers break even by 2028
  - The 21 suppliers are already in compliance per current data

# Guidance to Economic Model

- Overview of model framework
- Default inputs to the model – underlying data and rationale
- Guidance for adjustment for each supplier-defined input
- Calculation of impact of leak detection on real loss
- Benefit-cost analysis



# Guidance to Economic Model

# Peer Review of Economic Model

- Economic model framework
- Benefit-cost calculation and assessment
  - Leak detection and repair costs
  - Avoided cost of water
  - Rise in price of water
  - Discount rate
  - Lifecycle time horizon
  - Projection of costs and benefits across lifecycle time horizon
- Correlation: Water loss reduction with unreported leakage
- Leak profile and
  - Reported, unreported and background leaks Detectable v/s Undetectable
    - Infrastructure Condition Factor
  - Estimated leak detection frequency (not prescribed)
  - Rate of rise of leakage
  - Leak detection efficiency



# Economic Model: Next Steps

- Peer review in process
- Formal rulemaking: Suppliers can opt to send economic model with entered data to State Water Board
  - Provide supporting documentation
- Adoption of standards based on model with entered or default data