



Role of Research and Benefits of WRF Subscription to Policy Makers

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advancing the science of water



Role of Research and Benefits of WRF Subscription to Policy Makers

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advancing the science of water

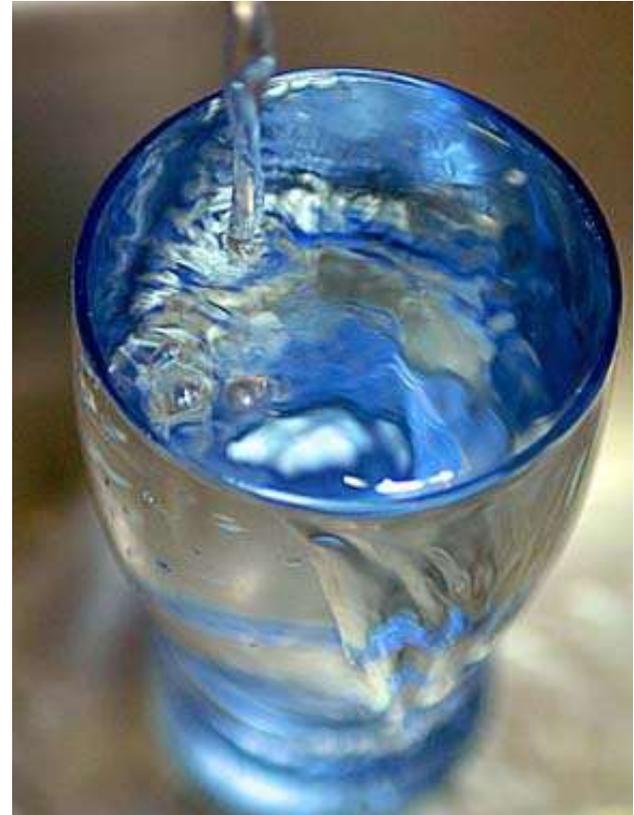


Outline

- WRF 101
- Bottom Line Benefits
- Research Programs
- Access

WRF 101

- Research Cooperative
 - Sponsor research
 - Publish/disseminate knowledge
- ~1,000 subscribers
- Celebrating 50 in 2016!



Subscribers & Partners



April 23, 2015

Bottom Line Benefits

- Utilities desire to learn from one another
- Community moving towards greater integration in problem solving
- WRF governed solely by senior level water utility representatives → utility driven research priorities
- Opportunities to engage and shape future

Research Programs

Focus Area

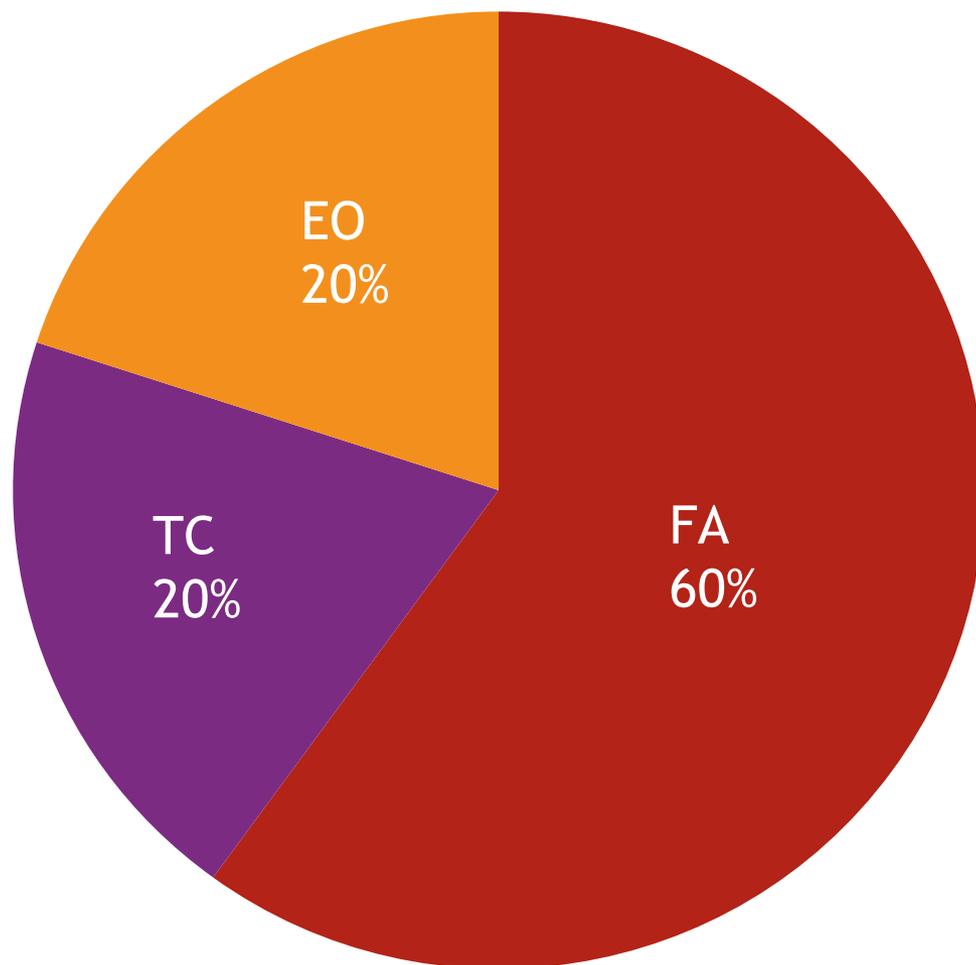
- 10 high priority, broadly relevant issues
- Targeted, multi-year research agenda

Emerging Opportunities

- Emergent challenges
- Quick research response

Tailored Collaboration

- Subscriber driven
- May be limited or regional impact



Focus Area Program

Integrated
Water
Management

CECs Risk
Communication

Demand
Forecasting

Finance

NDMA

Infrastructure

Integrated
Water/Energy
Planning

Biofiltration

Emerging DS
Pathogens

Intelligent DS

Water Utility Finances: Best Practices for Setting Rates, Financing Capital Improvements and Achieving Stakeholder Support

By 2017, develop utility communication tools for stakeholders, critically evaluate rate-setting strategies, tap financial best practices and efficiencies from outside the water industry, develop decision support tools for capital improvement financing, and **enhance water affordability assistance programs.**

1) Communication

2) Rate Setting

3) Capital
improvement
funding best
practices

4) Outside the
water industry

5) Affordability

FA Objectives

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graph TD; 1[1) Communication] --> 2[2) Rate Setting]; 2 --> 3[3) Capital improvement funding best practices]; 3 --> 4[4) Outside the water industry]; 4 --> 5[5) Affordability]; 5 --> 1;
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Research Agenda - Jan 2014

Year	Project	FA Objectives				
		Comm.	Rates	Affordability	CIP Funding	Outside the Industry
2012	Rate Approval Process Communication Strategy and Toolkit - #4455	X	X			
2013	Capital Funding Imperatives: Best Practices for Identifying, Prioritizing, Funding and Resourcing CIP's - #4493	X			X	
2014	Identifying and Evaluating Opportunities for Reducing Variability of Utility Revenues - #4552	X	X	X		X
	Customer Assistance Programs for Multi-family Residential and other Hard to Reach Customers - #4557	X		X		X
2015	Leveraging Best Financial and Business Practices from Outside the Water Industry	X	X	X	X	X
	Projects TBD determined based on ongoing work and 2014 funding decisions					

Water Demand: Improving the Effectiveness of Forecasts and Management

By 2018, increase the effectiveness of demand forecasting and management, by increasing our knowledge of water demand factors, providing guidance on preparing forecasts, understanding the uncertainty associated with them, and more effectively incorporating demand forecasts and their uncertainty into financial, infrastructure and water resource plans.

1) Methods and Effectiveness

FA Objectives

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graph TD; A[1) Methods and Effectiveness] --> B[2) Uncertainty and Planning]; B --> C[3) Future Factors]; C --> A;
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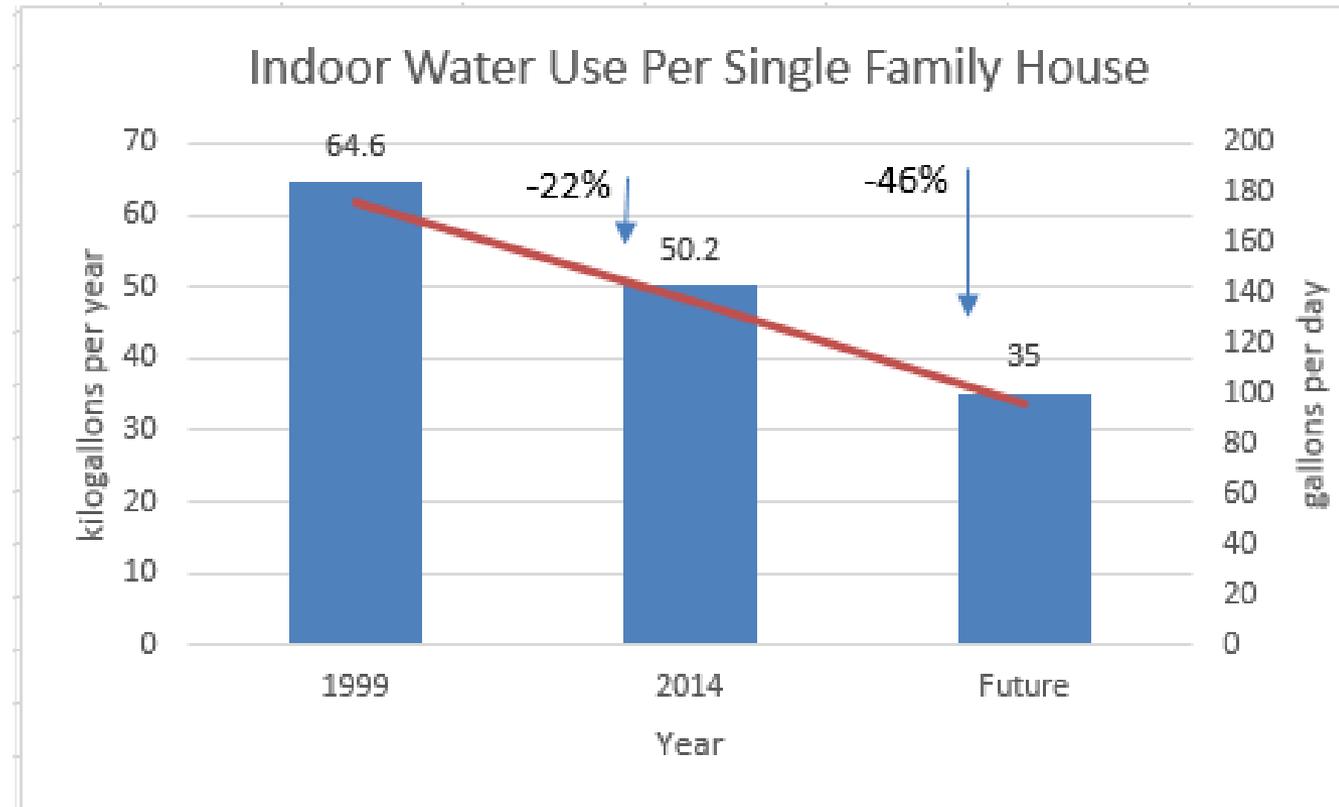
3) Future Factors

2) Uncertainty and Planning

Recent WRF research

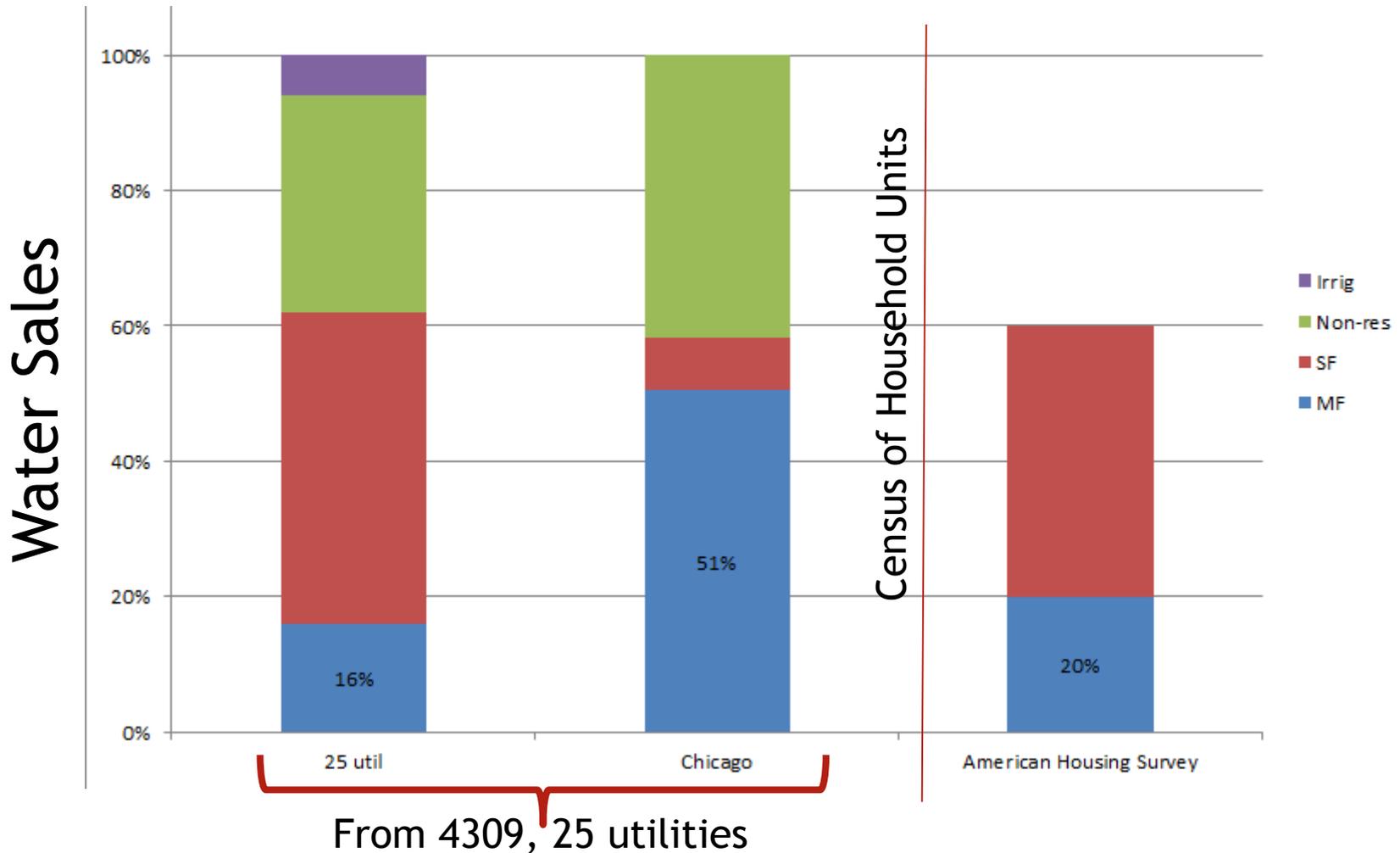
Demand Factors: include climate data in future scenarios of water demand (WRF 4263)

Sectors:
Residential
single-family
households
(WRF 4309,
unpublished)



2014 #1 project

Water Use in the Multi-Family Housing Sector



Year	Projects	Methods	Uncertainty	Demand factors / sectors
2012	Water Demand Forecasting in Uncertain Times: Isolating the Effects of the Great Recession (4458)			X
2013	Integrating high efficiency standards and technology into demand forecasting (4495)			X
	Analysis of the effectiveness of short term demand forecasting (4501)	X		
2014	Water use in the multi-family housing sector (4554)			X
	Uncertainty in long term water demand forecasting (4558)		X	
2015	Analysis of the effectiveness of long term demand forecasting and recommendations for improvement	X		
	Comparison of short vs. long term forecasting: objectives, techniques and potential for integration	X		
	National study of water use in commercial, industrial, and institutional sectors			X
2016	Methods of planning with uncertainty in demand forecasts		X	

Water Use in the Multi-Family Housing Sector

- Create water use metrics
- How to include MF housing sector into demand forecasting

\$300,000

- State of industry of literature & practices
- Survey utilities
- Data analysis of billing records & water audits
 - Primary sub-categories
 - Water use metric(gpcd or g/unit)
 - Water use trends from 2000-2013

Alice Fulmer



Chemicals of
Emerging Concern

John Whitler



Water Supply
Diversification

Dr. Djanette Khiari



Disinfection By-
Products

Dr. Grace Jang



Microbials &
Distribution
System Integrity

Dr. Hsiao-Wen Chen



Advanced
Treatment

Katie Henderson



Source Water
Protection

Dr. Jian Zhang



Asset
Management

Jonathan Cuppett



Utility Finance

Dr. Kenan Ozekin



Climate Change

Linda Reekie



Customer Service
& Energy
Management

Mary Smith



Distribution
System Integrity

Maureen Hodgins



Water Efficiency



THANK YOU

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