

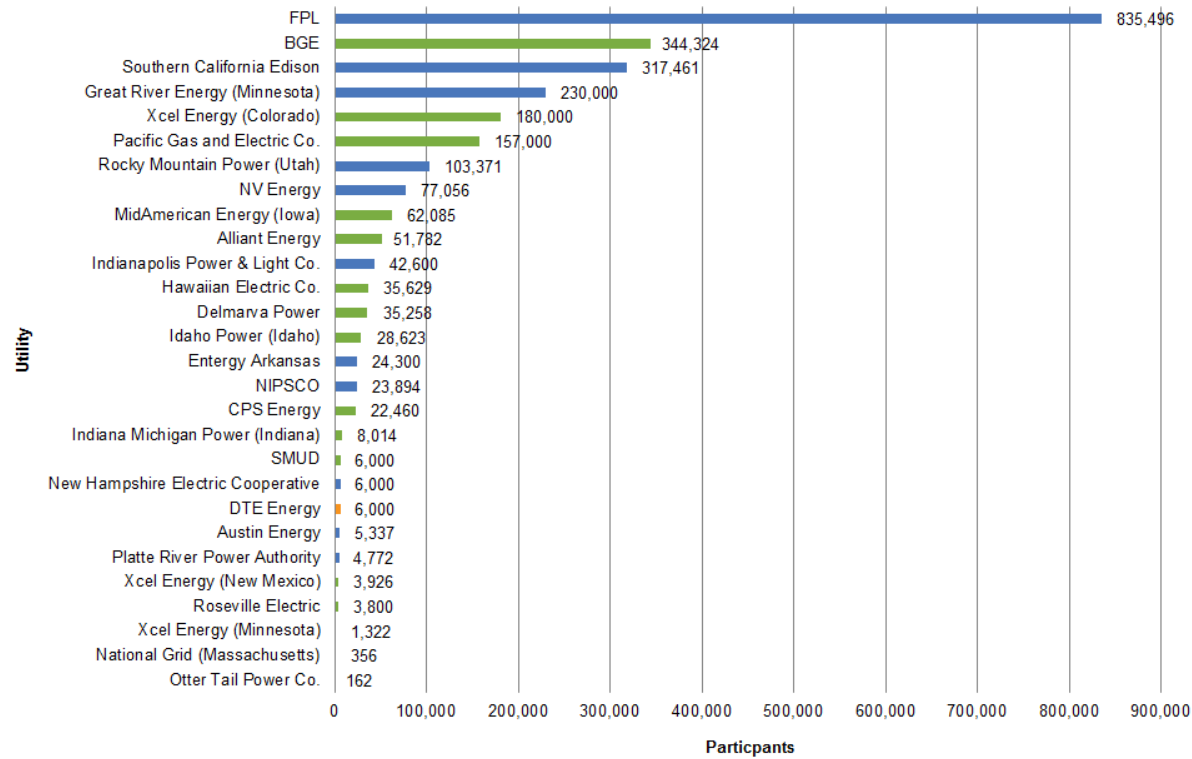
Direct Load Control Program Benchmark 2016

Overview/Background

2012 & 2016 DLC Benchmarking Efforts

- Industry-wide benchmarking analysis of direct-load control programs
 - To inform utilities on trends in program design, performance, and technology
 - 2012 benchmark included data from 23 utilities
 - 2016 benchmark includes data from 33 utilities
- Data includes:
 - Participation
 - Load Impacts
 - Budget Data
 - Technologies and Vendors

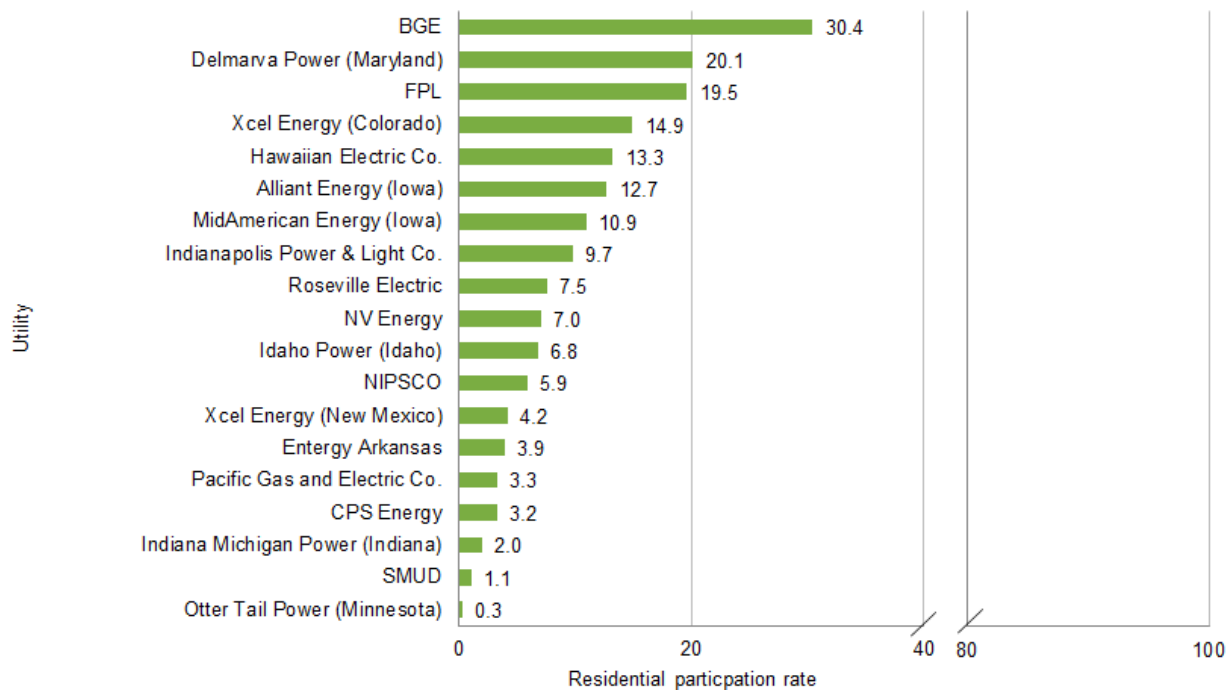
Participation



Base: Utilities that answered the question (n = 12) and data from annual reports (n = 16).
Question S4_2: In 2015, what was the total enrollment of customers in your direct load control program? **Note:** Xcel Energy is counted as three utilities given the distinct nature of the data for each state.

© E Source; data from 2016 DLC Benchmark and utility annual reports

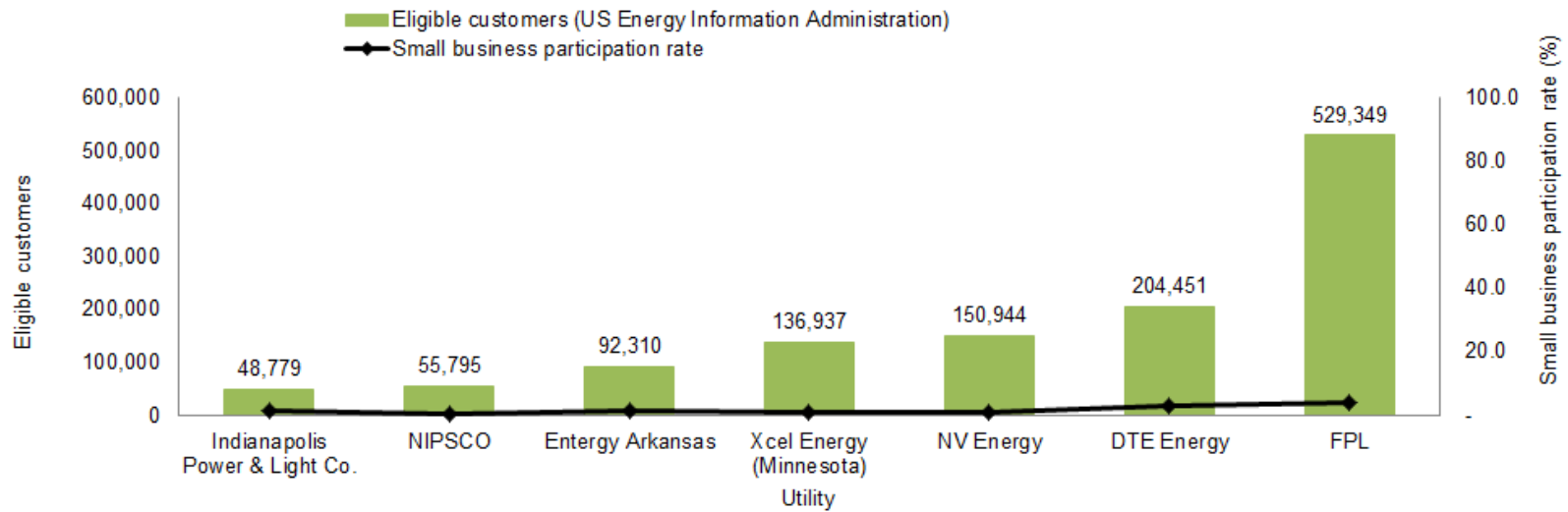
Residential Participation Rates



Base: Utilities that answered the question (n = 6) and data from annual reports (n = 13). **Question S4_2:** In 2015, what was the total enrollment of customers in your direct load control program? **Note:** Xcel Energy is counted as two utilities given the distinct nature of the data for each state.

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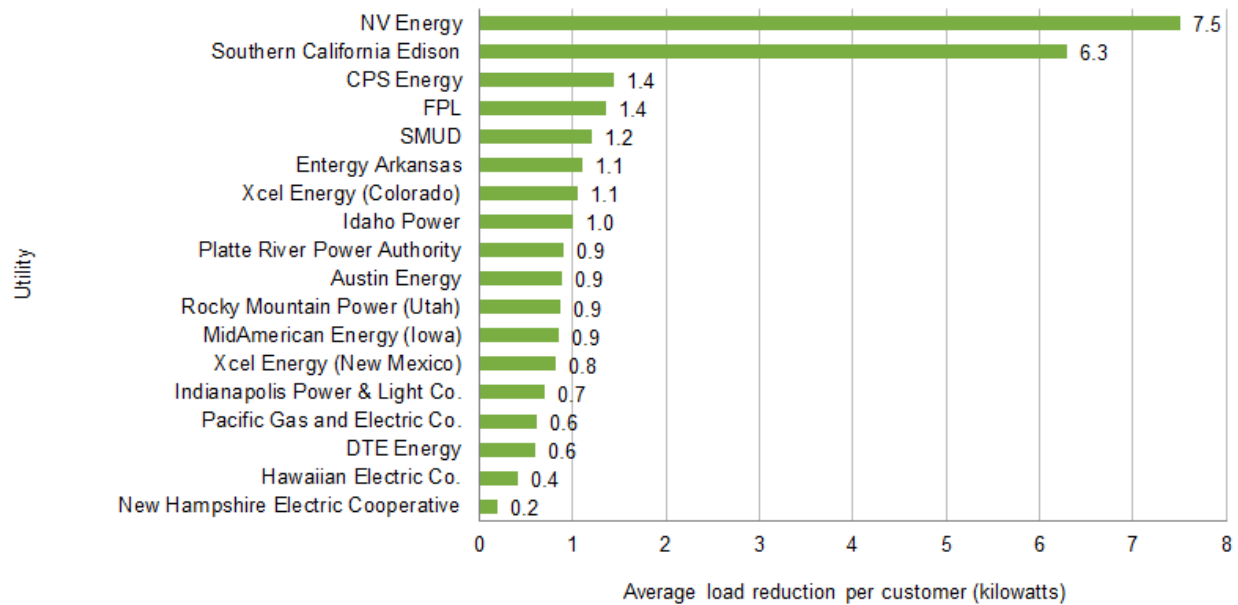
Small Business Participation Rates



Base: Utilities that answered the question (n = 3) and data from annual reports (n = 4).
Question S4_2: In 2015, what was the total enrollment of customers in your direct load control program?

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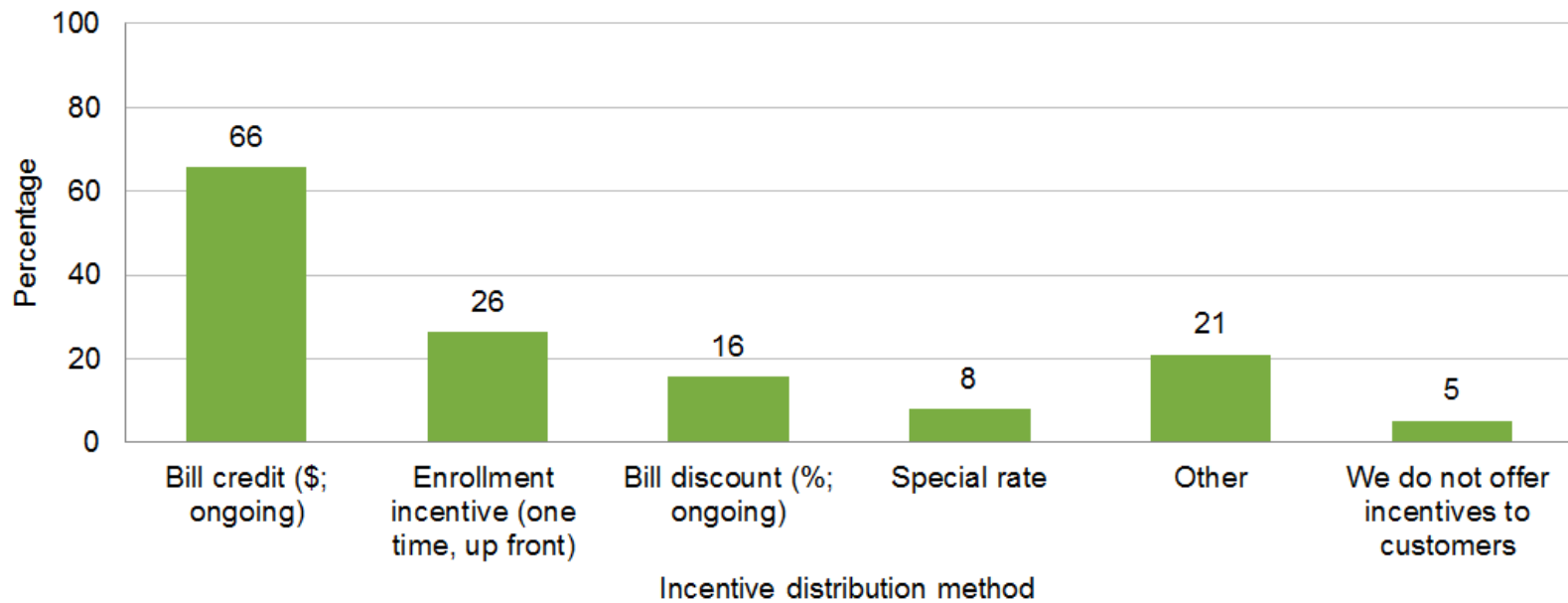
Average Load Reduction per DLC Participant



Base: Utilities that answered the question (n = 8) and data from annual reports (n = 10). **Question S5_2:** And what was the average peak load reduction per customer in kilowatts accounted for by your load control program in 2015? **Note:** Xcel Energy is counted as two utilities given the distinct nature of the data for each state.

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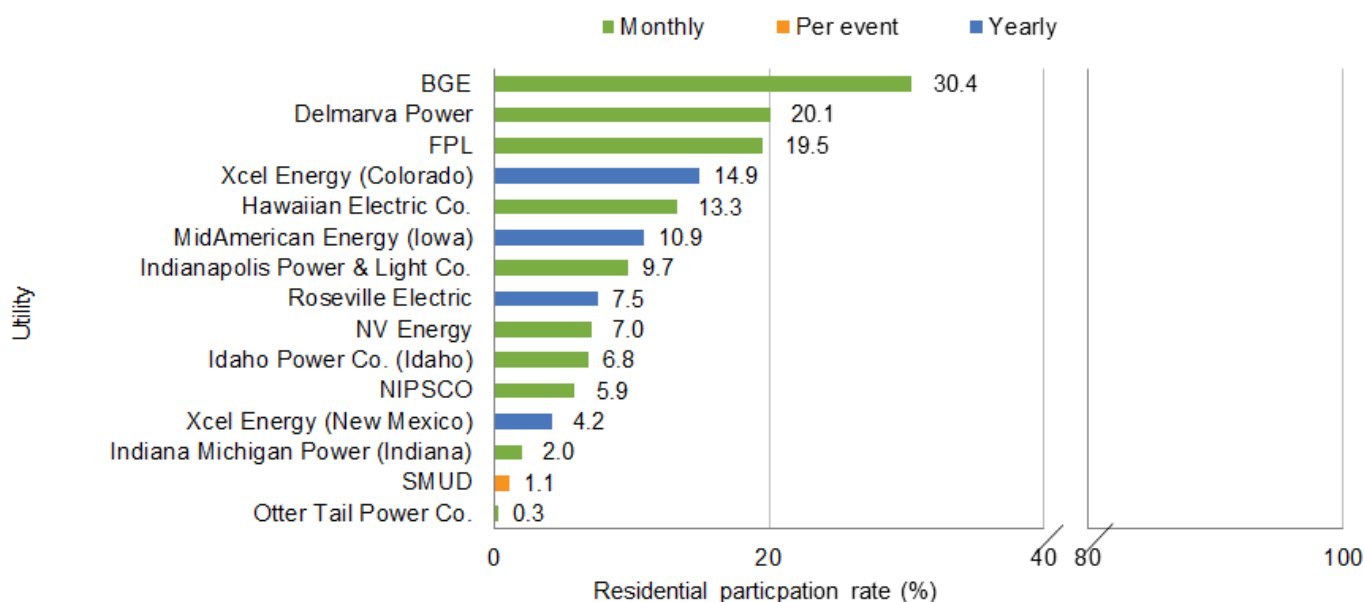
Incentive Methods



Base: Utility direct load control programs (n = 38). **Question S2_8:** Which of the following incentives, if any, does your load control program offer? Please select all that apply.

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Incentive Methods and Participation Rates

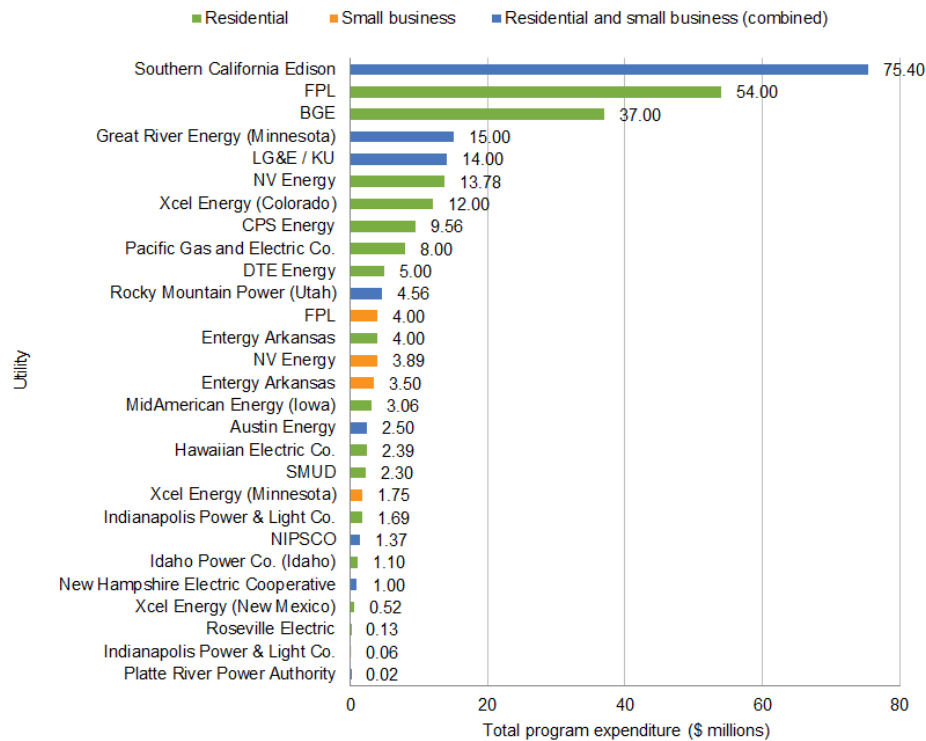


Base: Utilities that answered the question (n = 5) and data from annual reports (n = 10). **Question S2_9:** How often do you offer incentives for residential customers to participate in your load control program?

Question S4_2: In 2015, what was the total enrollment of customers in your direct load control program? **Note:** Xcel Energy is counted as two utilities given the distinct nature of the data for each state.

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DLC Program Expenditures



Base: Utility direct load control programs (n = 28). **Question S2_5:** What were your total load control program expenditures in 2015 (that is, the actual amount of money spent)? Please provide your answer in millions. **Note:** Xcel Energy is counted as three utilities given the distinct nature of the data for each state.

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DLC Technology and Vendors

Technology Vendor	Utilities Using Vendor
Comverge	9
Cooper	7
Honeywell	4
EcoBee	3
EnergyHub	3
Aclara	1
EcoFactor	1
Nest	1

Base: Utilities that answered the question (n = 24). **Question S3_3:** Which of the following vendors provide the primary technology for your load control program? Please select all that apply.

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DLC Benchmark
and utility annual reports

DLC implementation contractor responsibilities

Utility	Equipment installation	Call center management	Marketing	Complete / turnkey solution	Curtailment event management	Incentive processing	Program design	Other
Austin Energy	✓				✓			
Consumers Energy	✓	✓	✓			✓		
Entergy Arkansas				✓				
Idaho Power	✓	✓						
Indianapolis Power & Light Co.	✓	✓	✓					
LG&E / KU	✓				✓			
MidAmerican Energy (Iowa)	✓	✓						
National Grid (Massachusetts)	✓						✓	✓
Pacific Gas and Electric Co.	✓	✓						✓
PECO	✓	✓	✓	✓	✓		✓	
Platte River Power Authority				✓				
PSEG Long Island			✓		✓			✓
Rocky Mountain Power (Utah)	✓	✓	✓		✓			
Southern California Edison	✓							
Westar Energy				✓				
Xcel Energy (Colorado)	✓							

Base: Utilities that answered the question (n = 15) and data from annual reports (n = 1). **Question S3_1:** Do you hire implementation contractors to help administer certain aspects of your load control program? **QS3_2:** For which of the following aspects of your load control program do you hire implementation contractors? Please select all that apply.

© E Source; data from 2016 DLC Benchmark and utility annual reports

The Future of DLC

- Dynamic Pricing
 - Combining a DLC program with a dynamic pricing structure can contribute to optimum impact
 - Five respondents reported having dynamic pricing programs that DLC customers can also participate in
 - Thirteen indicated they do not plan to make this option available
- Advanced technologies
 - Twelve utilities use two-way communicating switches, three of which use AMI
 - DLC with AMI can ensure two-way communication and improve impact M&V and the identification of dead units