

What's in it for the customer?

Things change



# *Smart Grid is...*

Next Internet

Next telecom

Distributed structure

New consumer products

New consumer services

***Solve problems in consumers' lives***

# Benefits of Internet

Access to information –

*World Wide Web, Wikipedia*

New forms of communication –

*email, video, blogs*

Online marketplace –

*Amazon, Expedia, .com*

Entertainment choices –

*Netflix, YouTube, iTunes*

Social connection –

*Facebook, Twitter, chat*

# Benefits of wireless

Communication mobility

Access information anywhere

Mobile apps - hundreds of thousands

Affordable Internet

Social connection

# Benefits of smart grid

Improved billing

Outage detection

Fewer trucks to read  
meters

Help utilities integrate  
more renewables

Improved billing

Outage detection

Fewer trucks to read meters



I want that!

Impacts day-to-day activities of –

Improved billing

Utility

Outage detection

Utility

Fewer trucks to read  
meters

Utility

Help utilities integrate  
more renewables

Utility

Benefits of  
smart grid

What's in it for the customer?

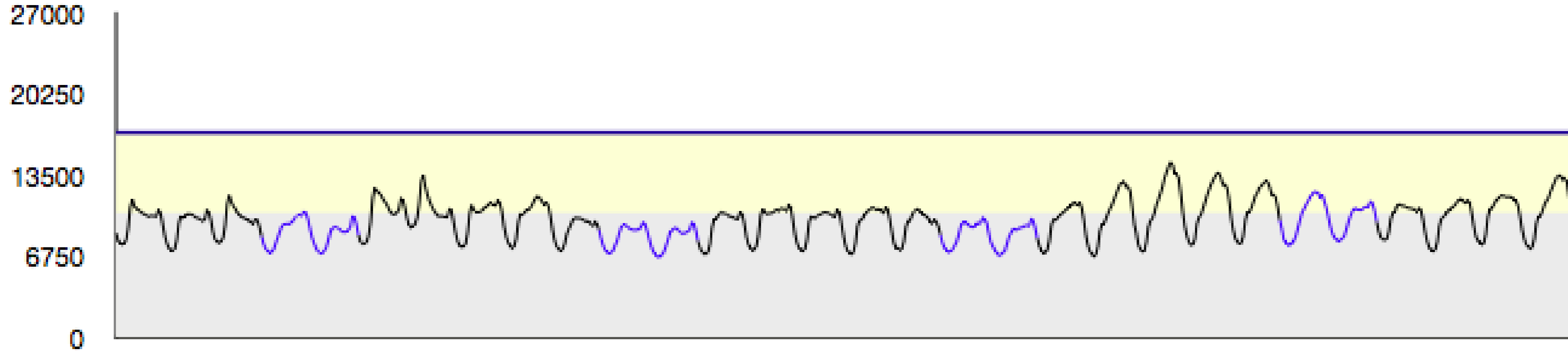
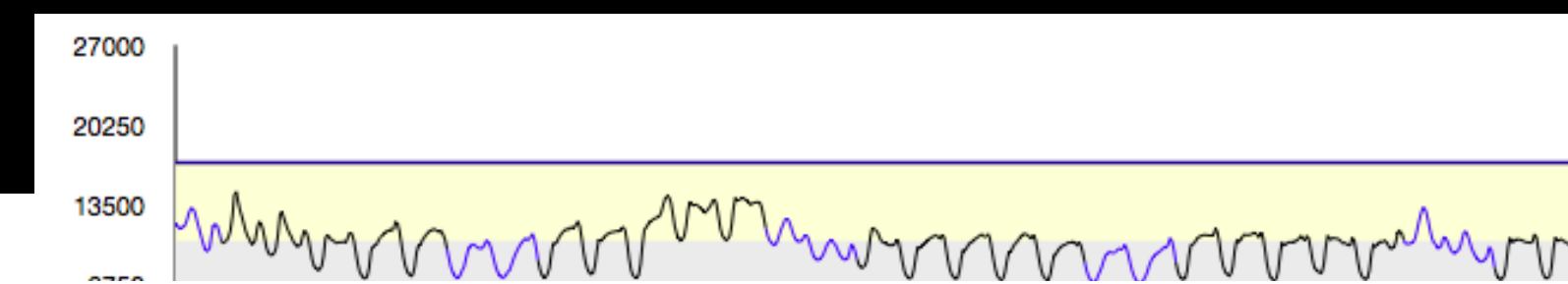
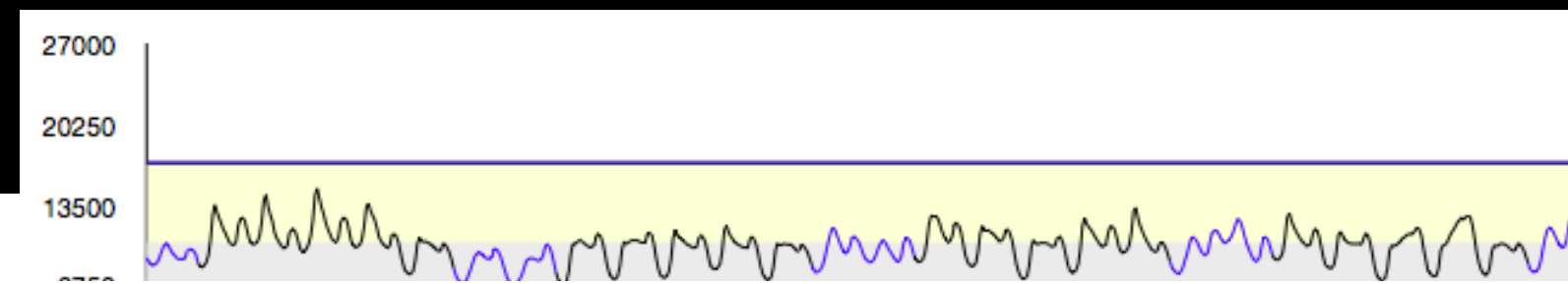
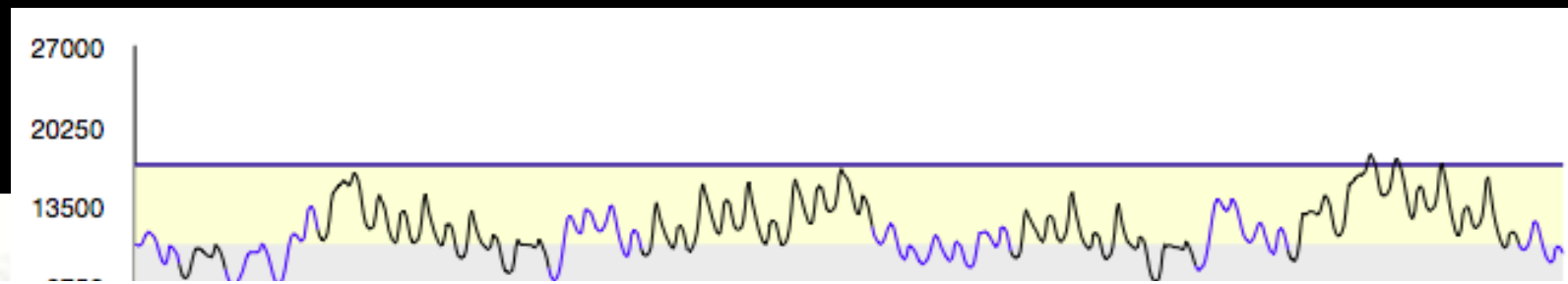
# Benefits of smart grid

## Load control

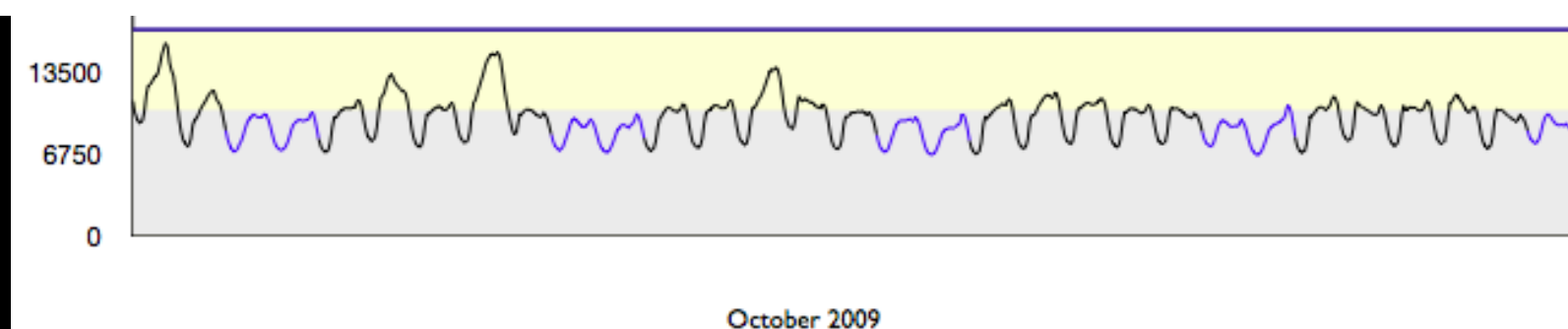
*i.e.*, alter customers' energy use

- when
- how much

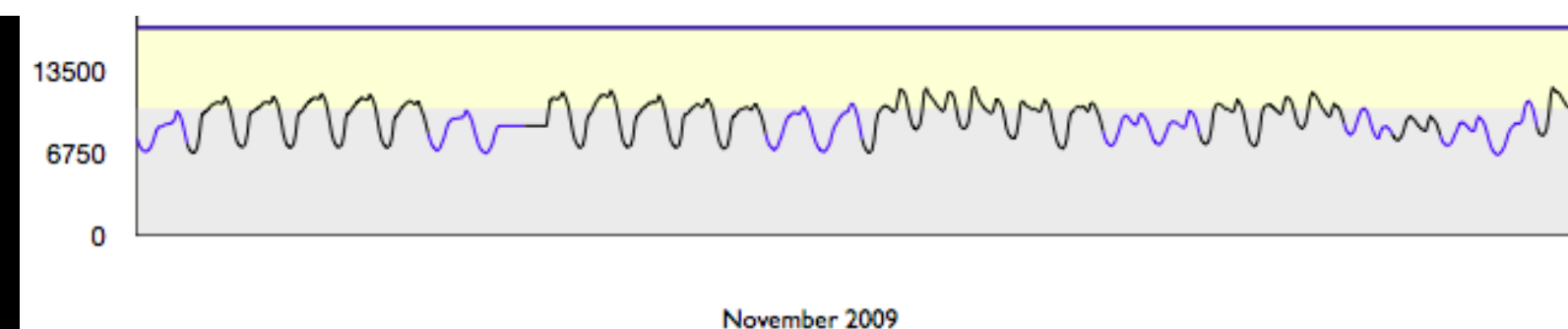
# Load curves by month



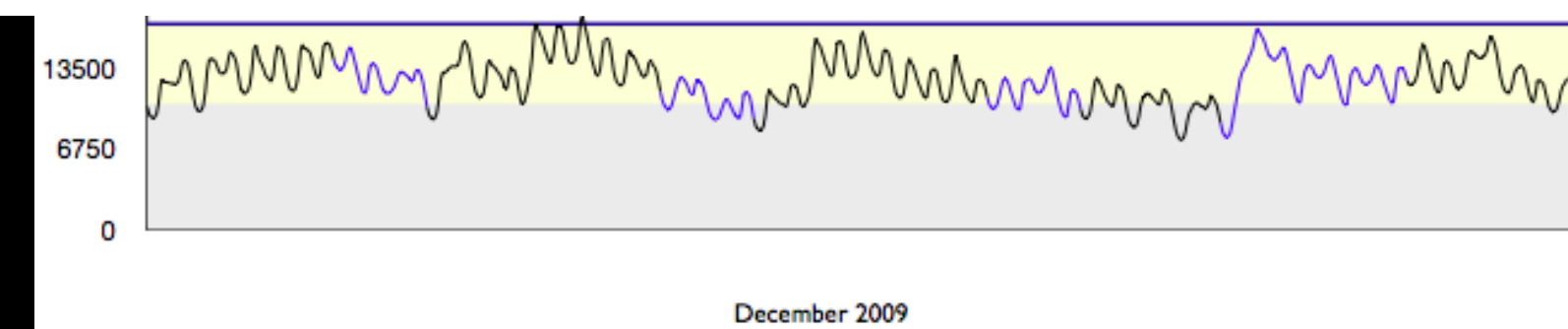
April 2009



October 2009

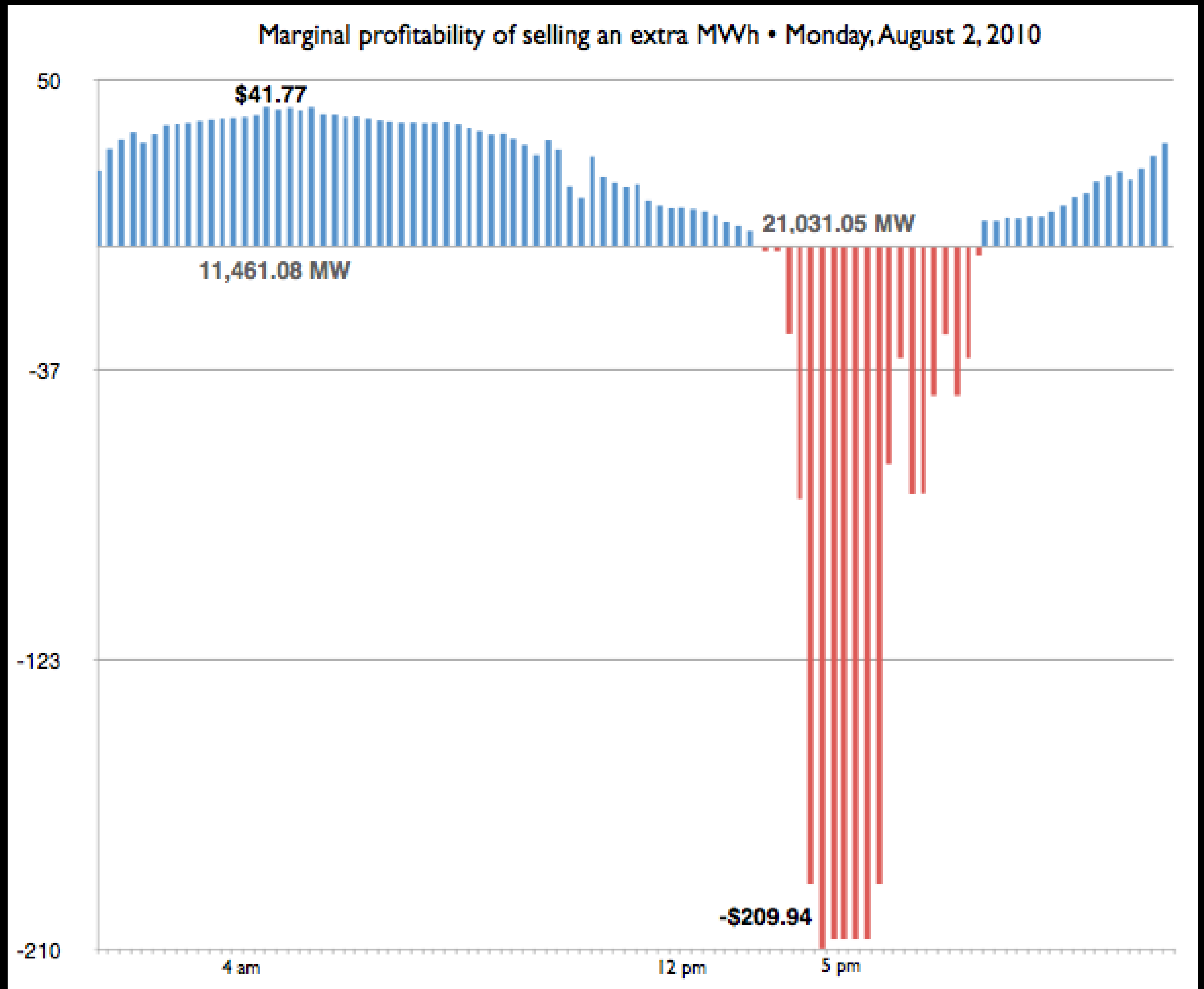


November 2009

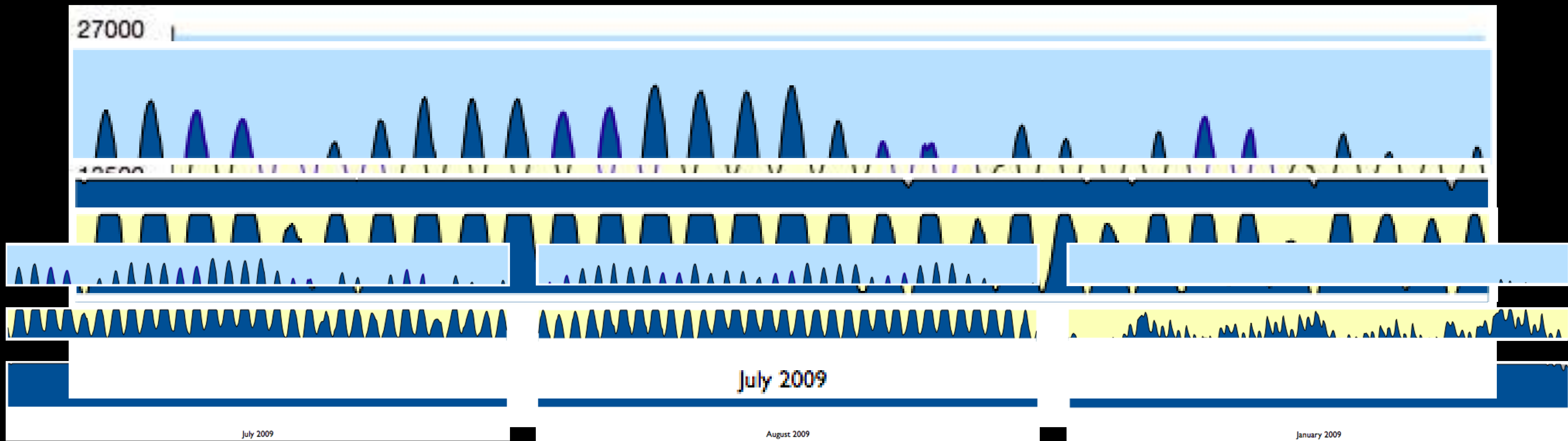


December 2009

Impacts  
retail  
utility  
finances



# Impacts distribution utility costs



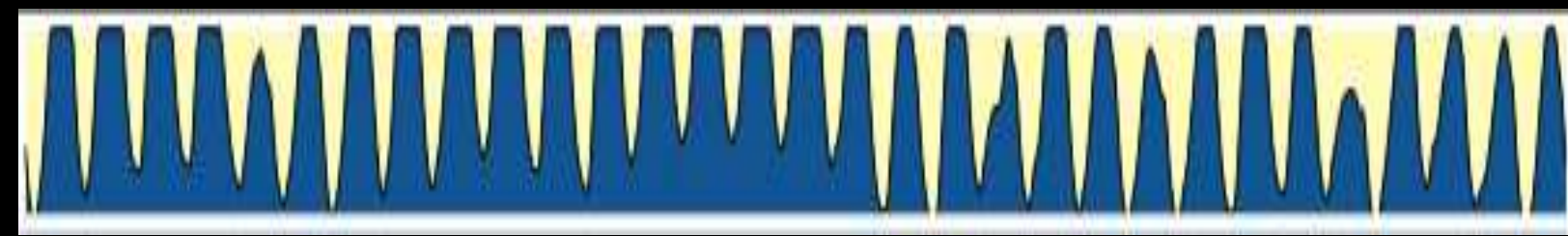
July

August

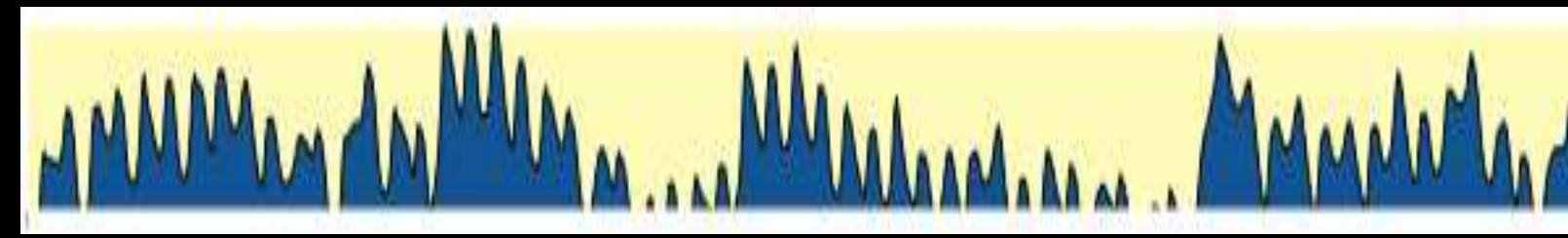
January

# Impacts distribution utility costs

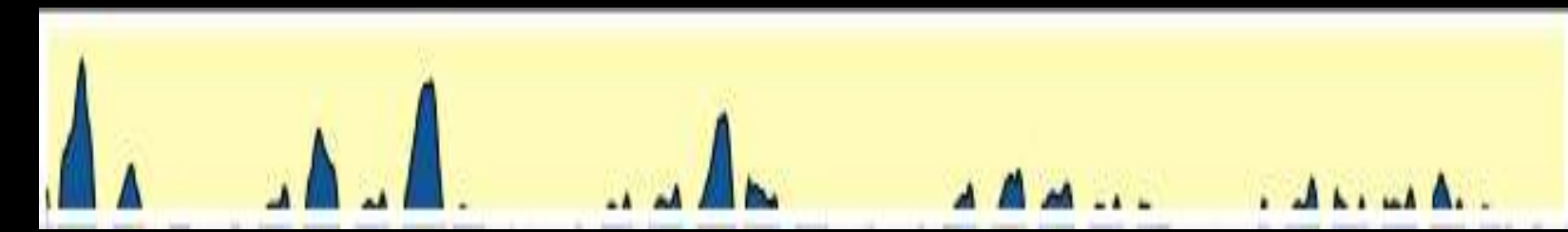
## Intermediate



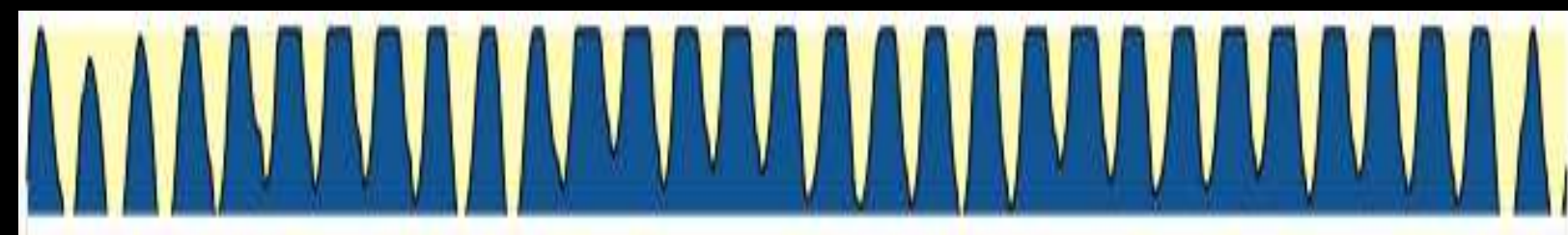
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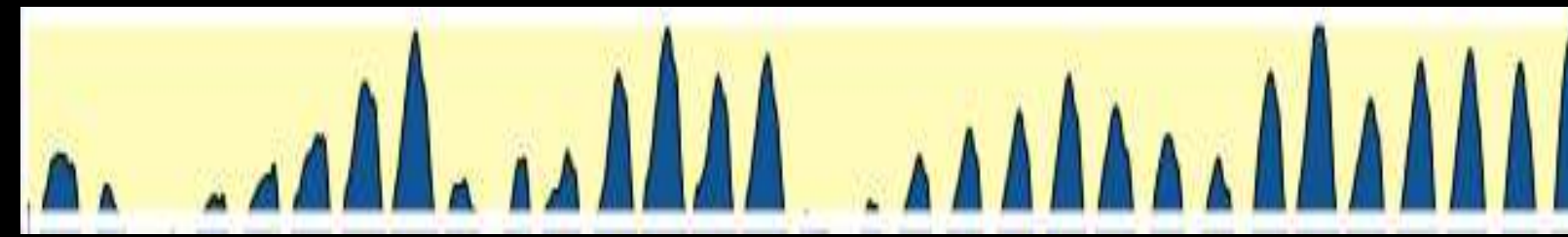
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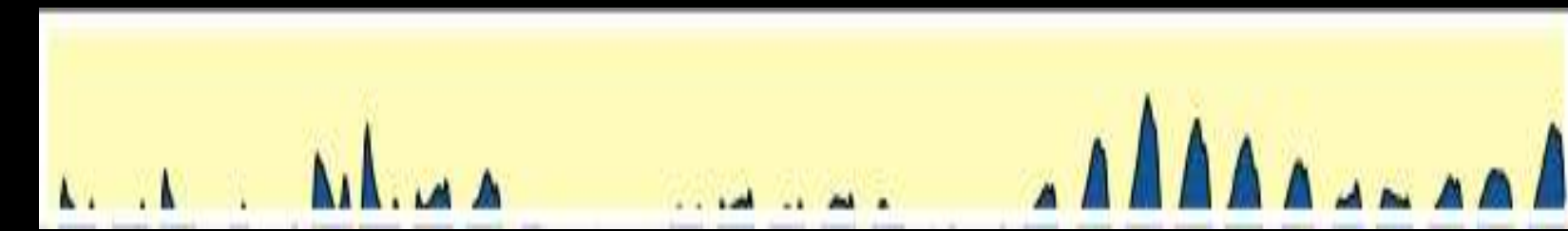
October



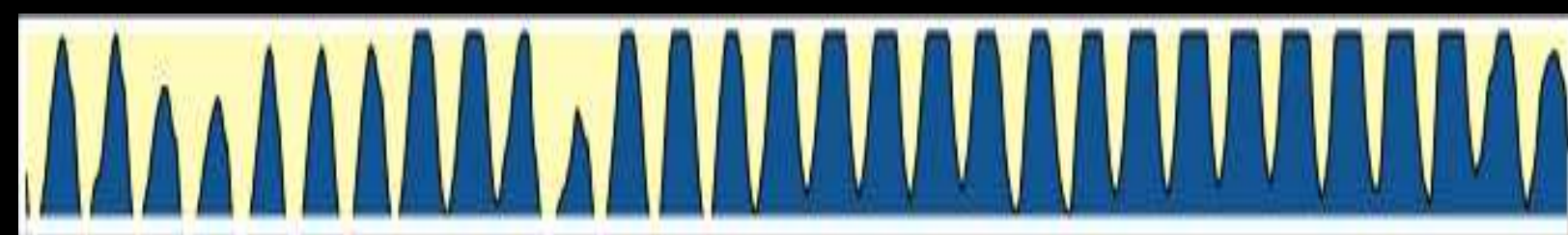
August



May



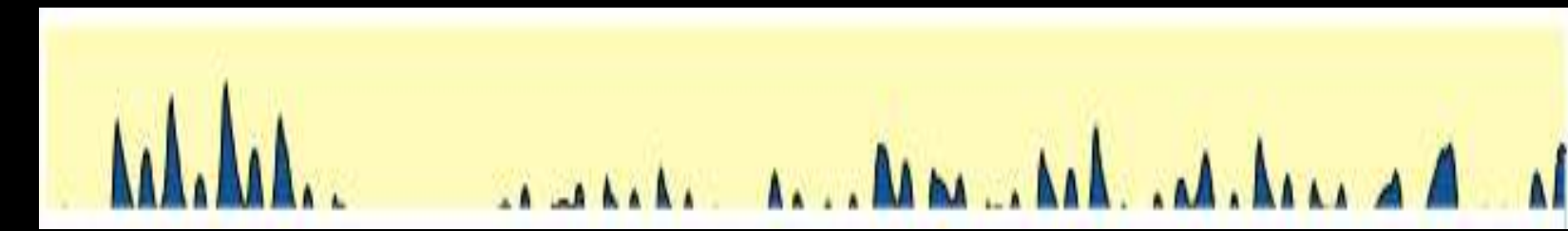
April



June



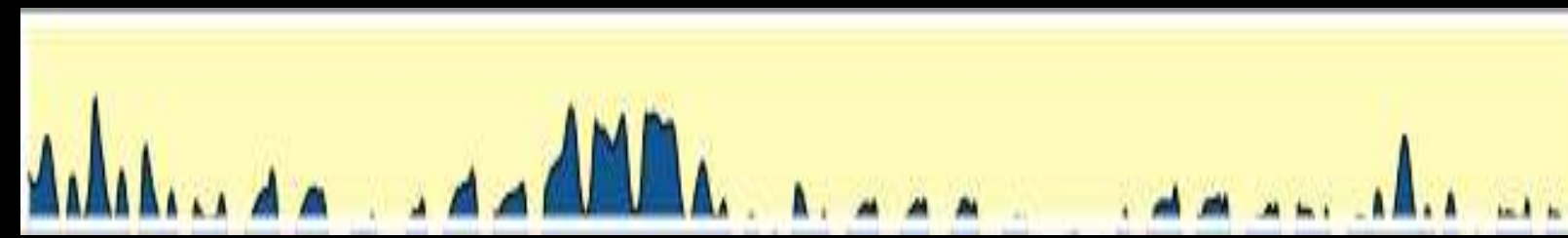
January



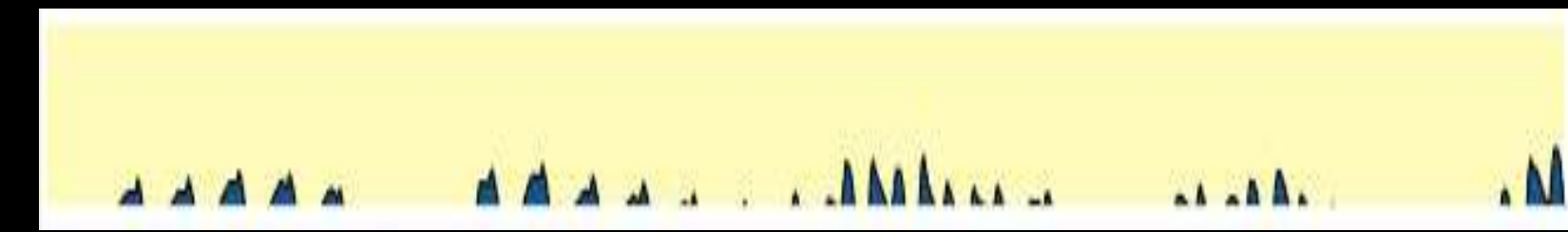
February



September



March



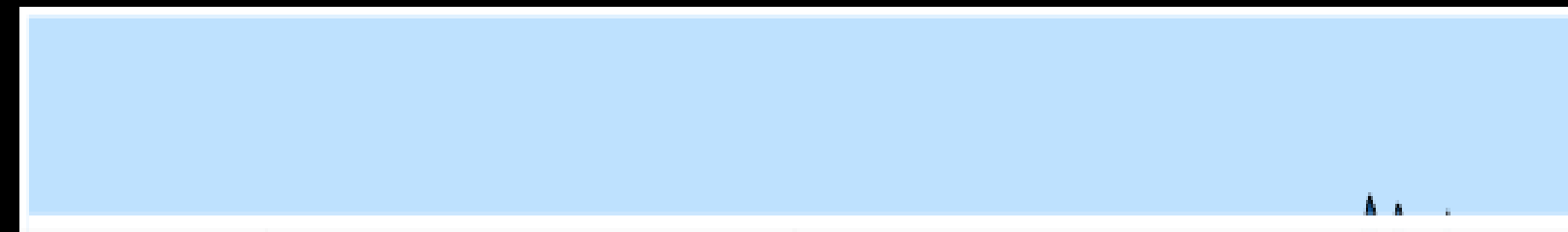
November

# Impacts distribution utility costs

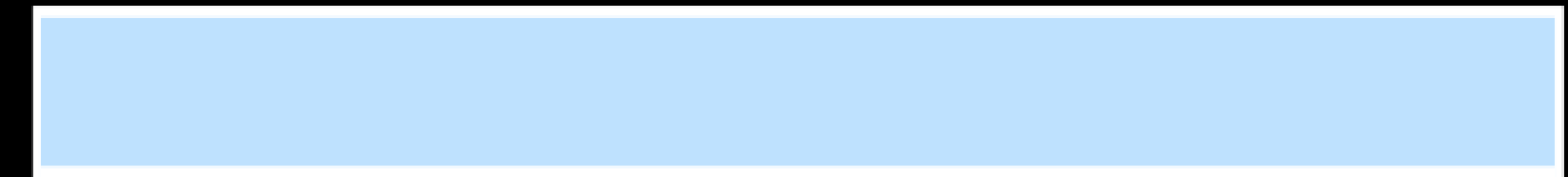
## Peak



August



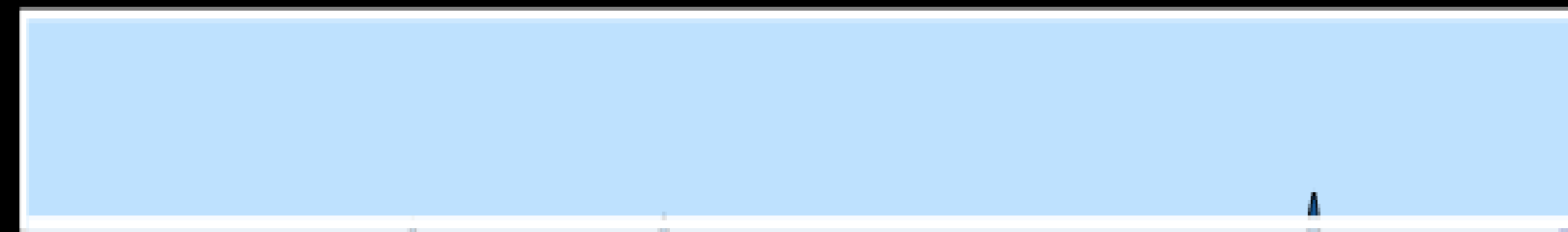
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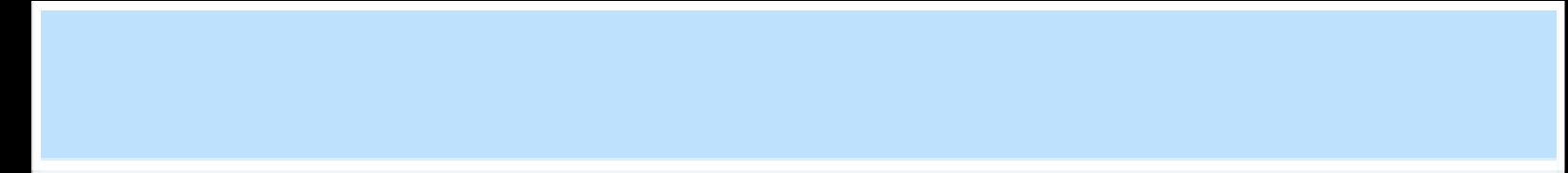
February



July



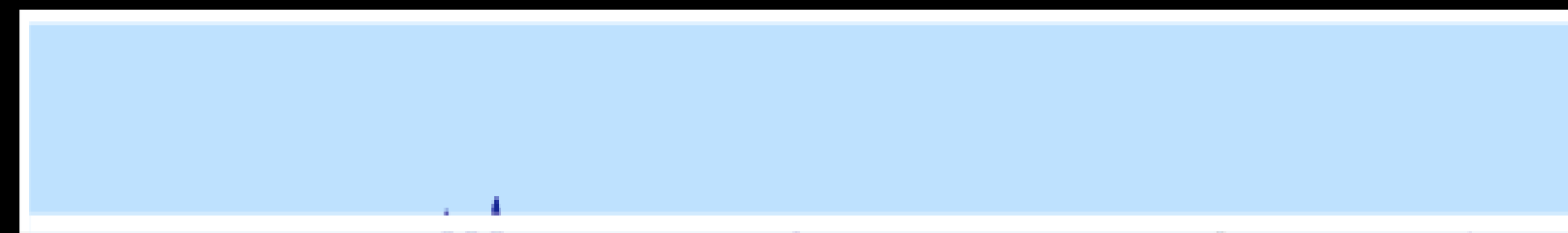
May



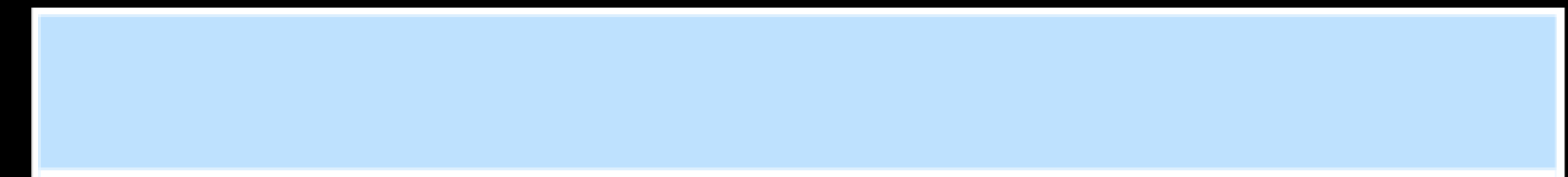
March



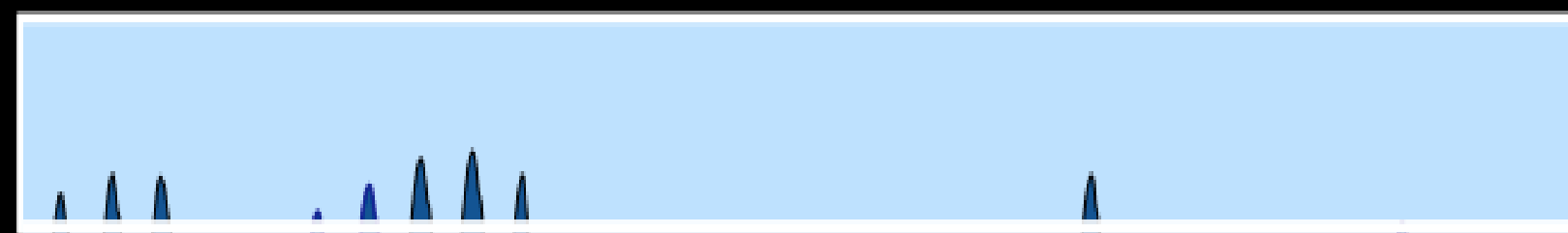
June



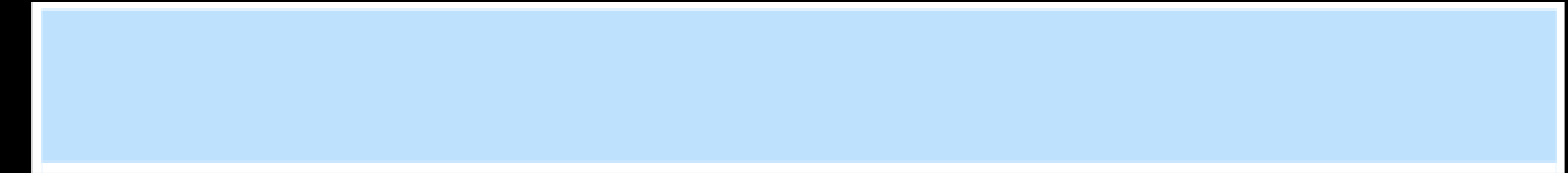
December



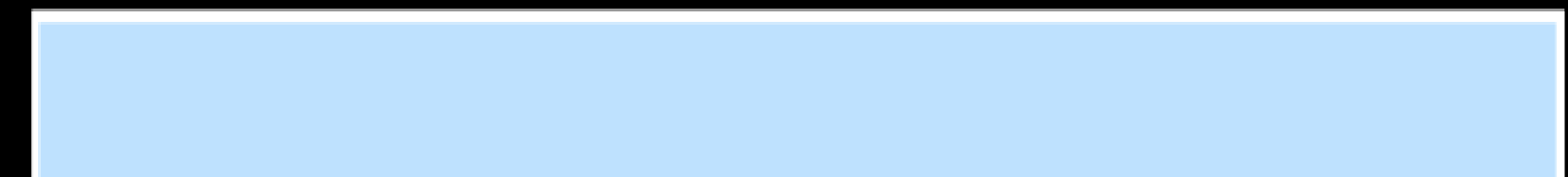
April



September



October



November

Good

Bad

Ugly

Load control  
approaches

Utility imposed

Customer controlled

# Utility imposed

Demand response

Turn off air conditioner

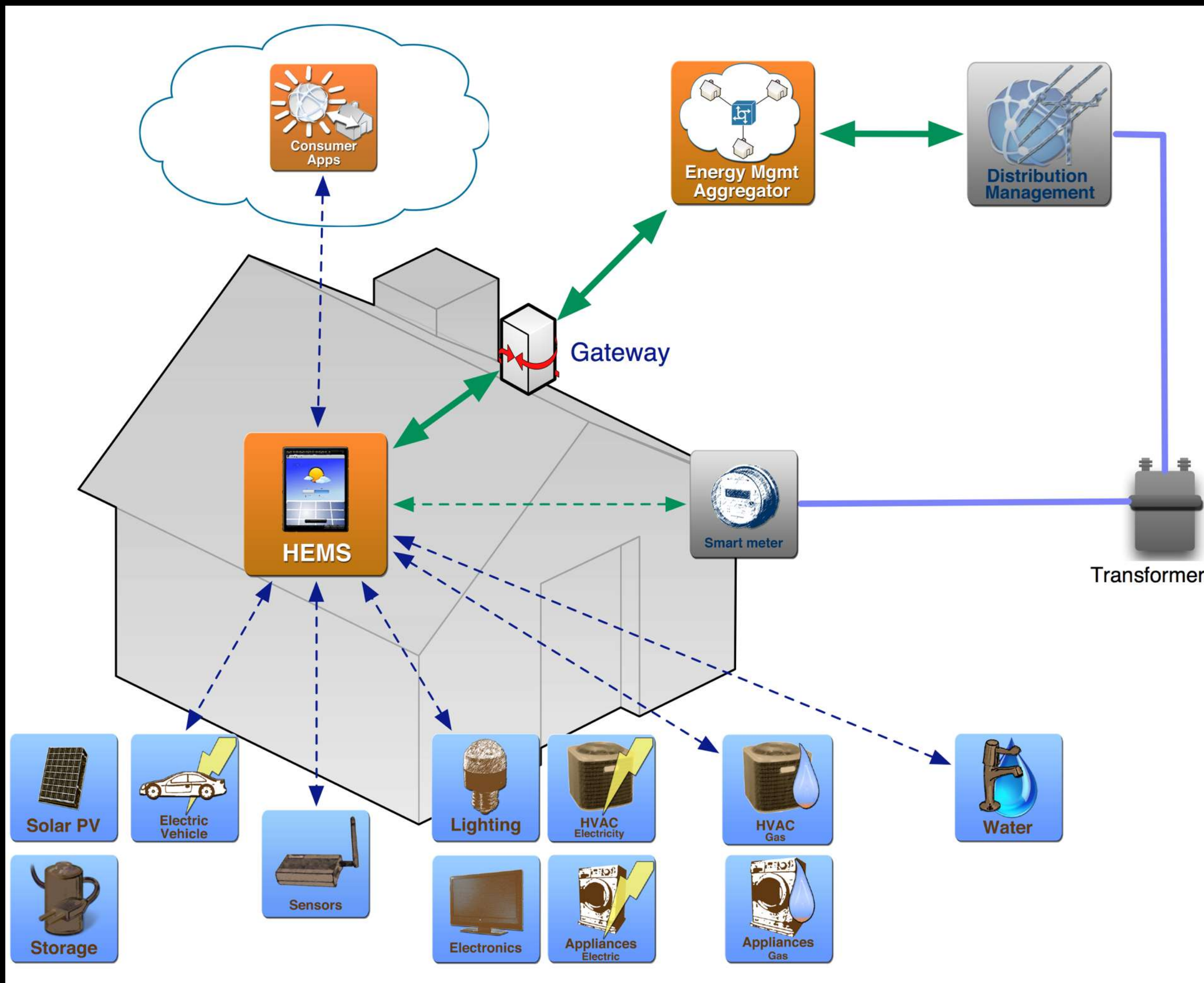
Raise prices in afternoon

Load control  
approaches

*Less service, more complexity*



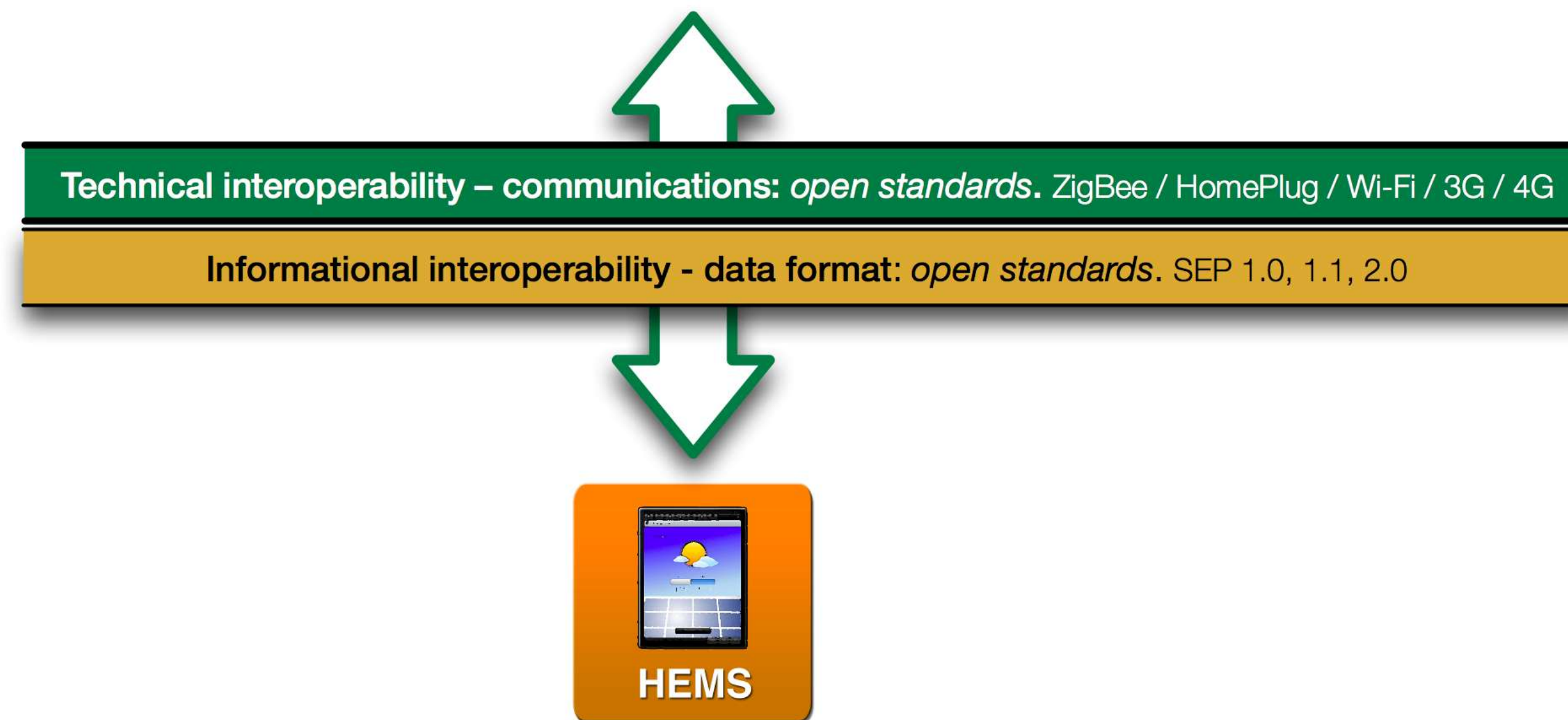
# the customer- focused smart grid





How we get there:

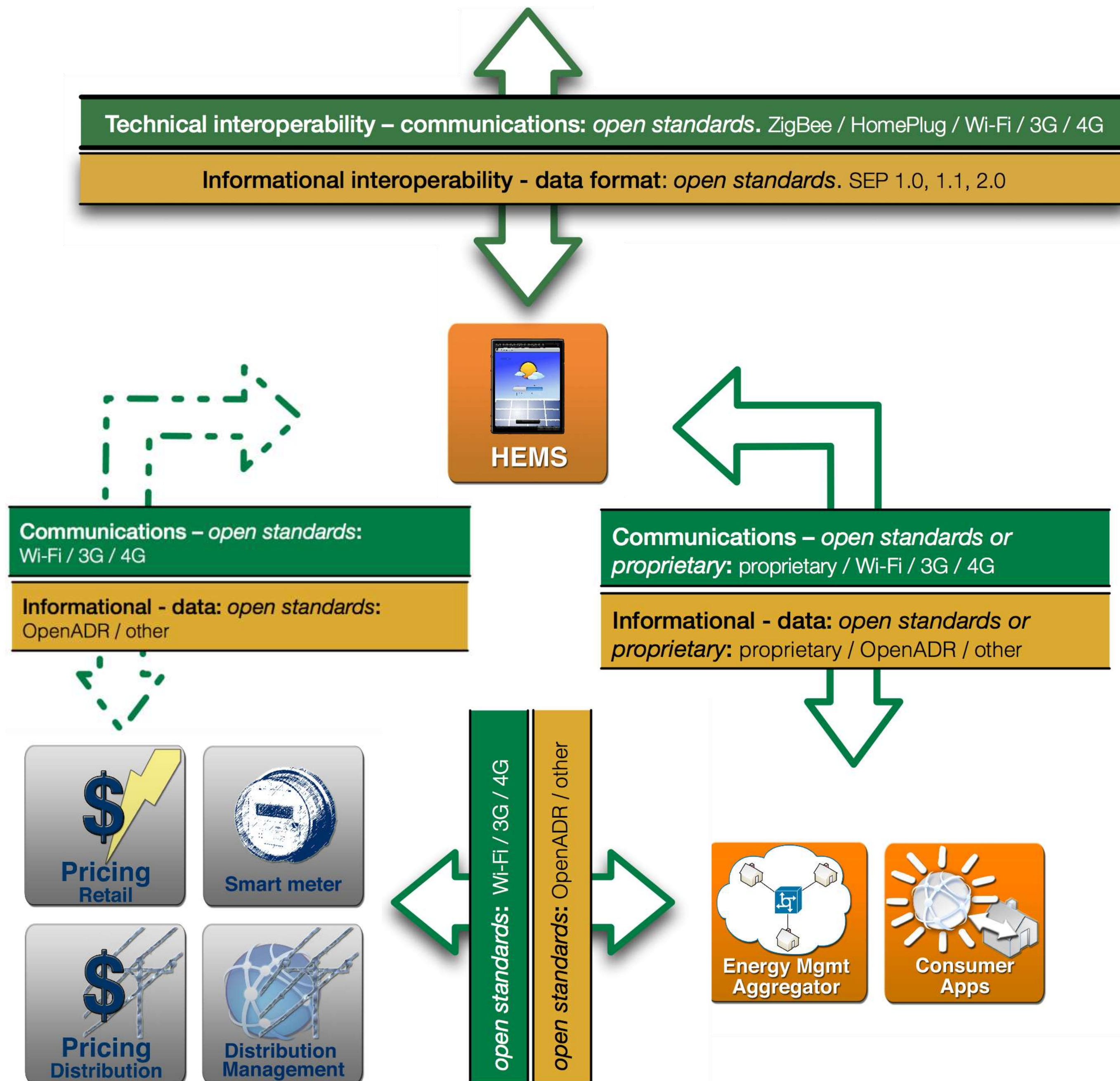
Industry standards





How we get there:

Industry standards



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Outage detection

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Fewer trucks to read  
meters

Utility

Help utilities integrate  
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Utility

Turn off your air  
conditioner

Customer

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