



Lawrence Berkeley National Laboratory  
Environmental Energy Technologies  
Division **Behavior Analytics**  
*Providing insights that enable evidence-based, data-driven decisions*

**Behavior Analytics:**  
**new data + new techniques**  
→ understand people, improve  
programs!

**Annika Todd, October 2016**

Team: Sam Borgeson, Dan Fredman, Ling Jin, Sid Patel, Anna Spurlock, Annika Todd, Alex Sim, John Wu, Taehoon Kim, Dongeun Lee, Jaesik Choi



# Things are changing!

- Electric vehicles, renewables, fancy batteries  
→ changing grid
- Energy reductions: need programs to **deliver**
  - **Where** we need it
  - **When** we need it
  - **How** much we need



# Things are changing!

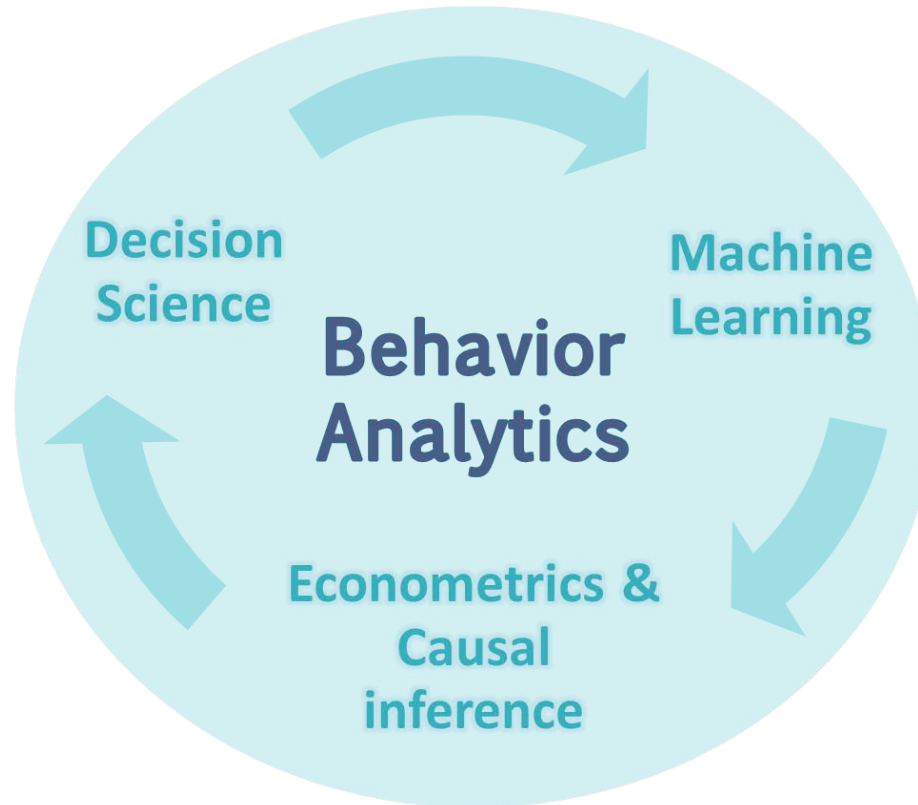
- Electric vehicles, renewables, fancy batteries  
→ changing grid
- Energy reductions: need programs to **deliver**
  - **Where** we need it
  - **When** we need it
  - **How** much we need
- And **cheaply!**
- And **quickly!**

sound overwhelming?



# We have a solution: *Behavior Analytics*

new, *easily accessible* data  
+  
new (and old) techniques



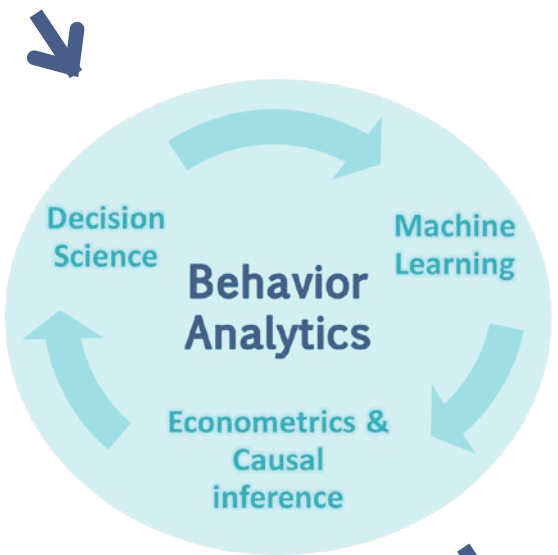
- **Understand people** & their energy behavior
- Get programs to **deliver more**



# Proof-of-concept (aka, example)

CPP program

smart meter data



**9 types** of people, with  
different energy behaviors

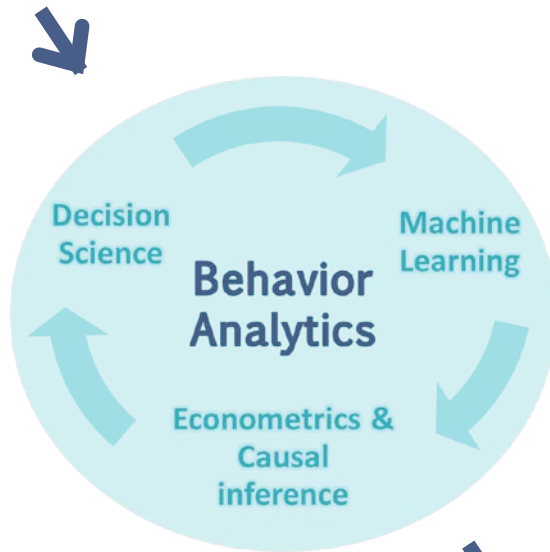


# Proof-of-concept (aka, example)

CPP program

smart meter data **only** - *no surveys!*

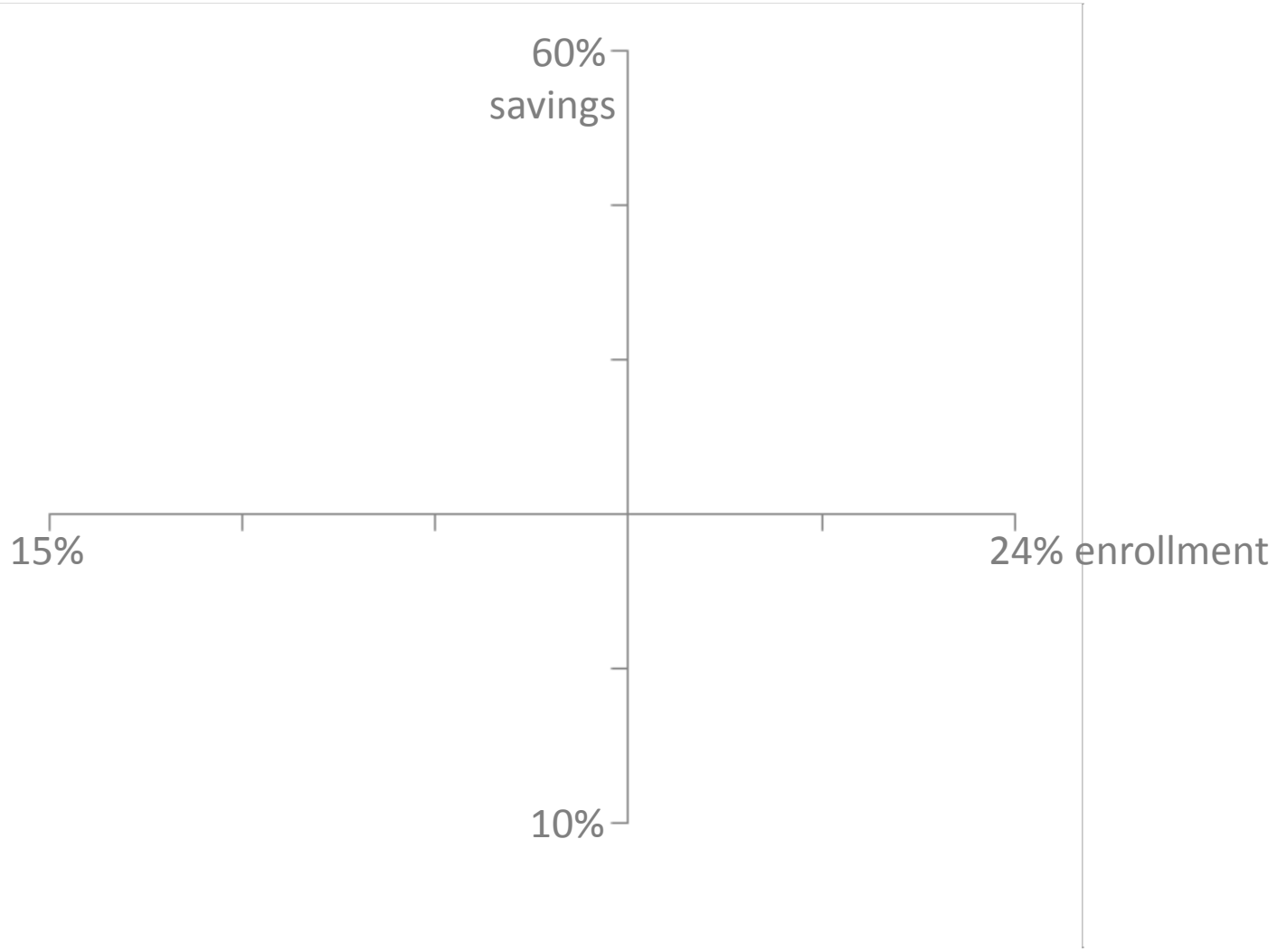
*no marketing labels!*



**9 types** of people, with  
different energy behaviors

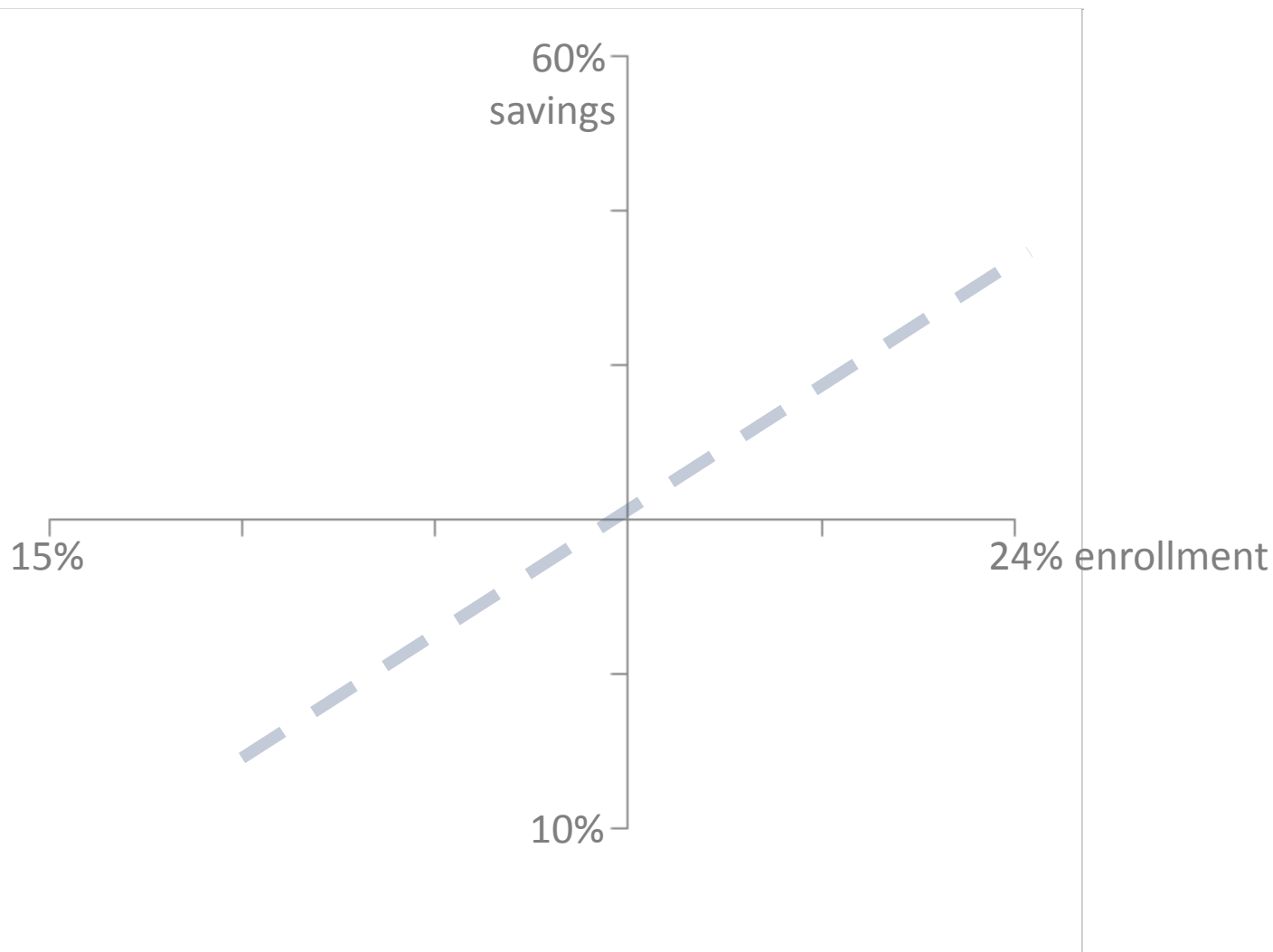


# percent enrollment vs. percent savings



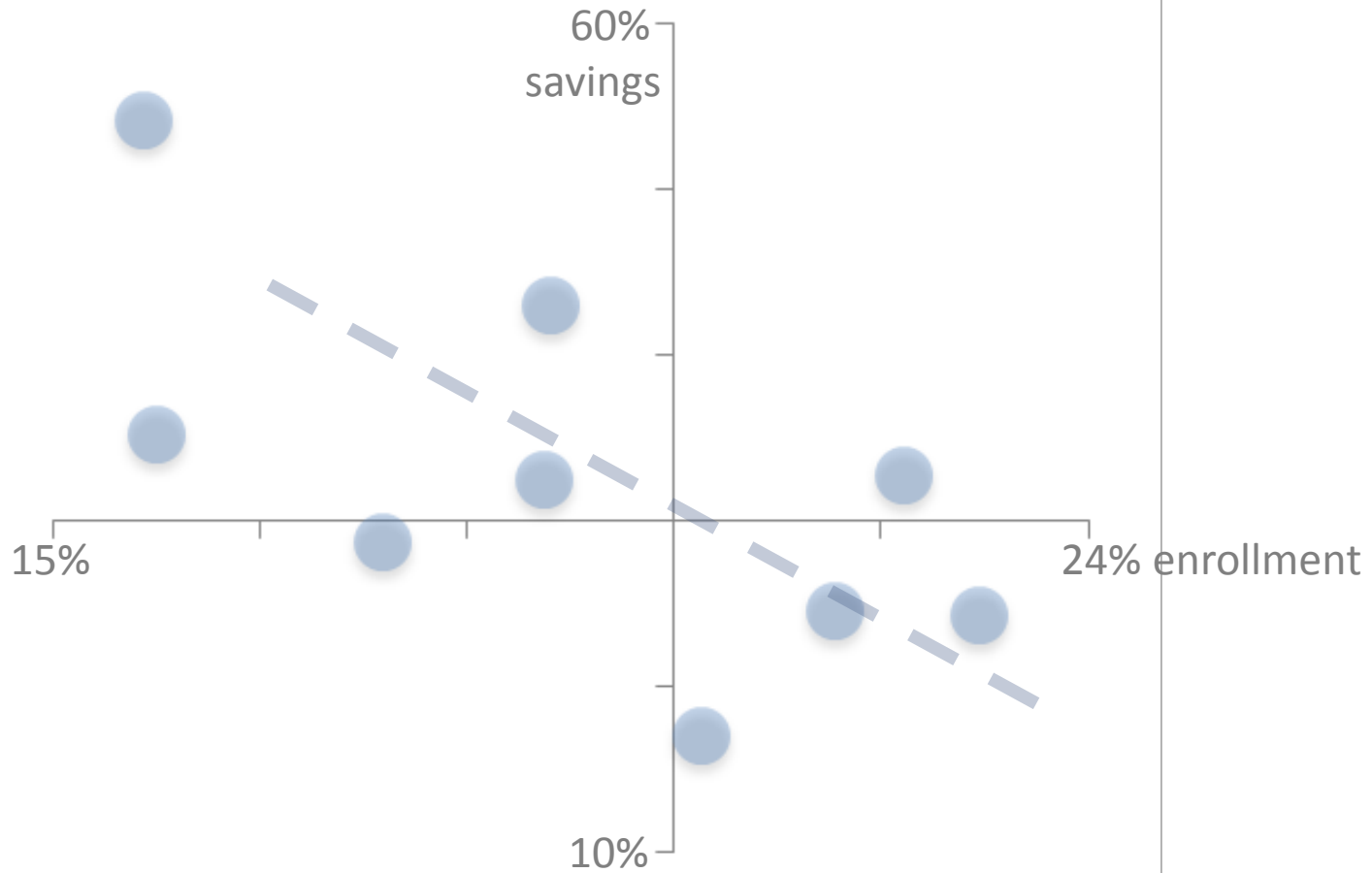


# You might think people who are more likely to enroll also save the most energy...



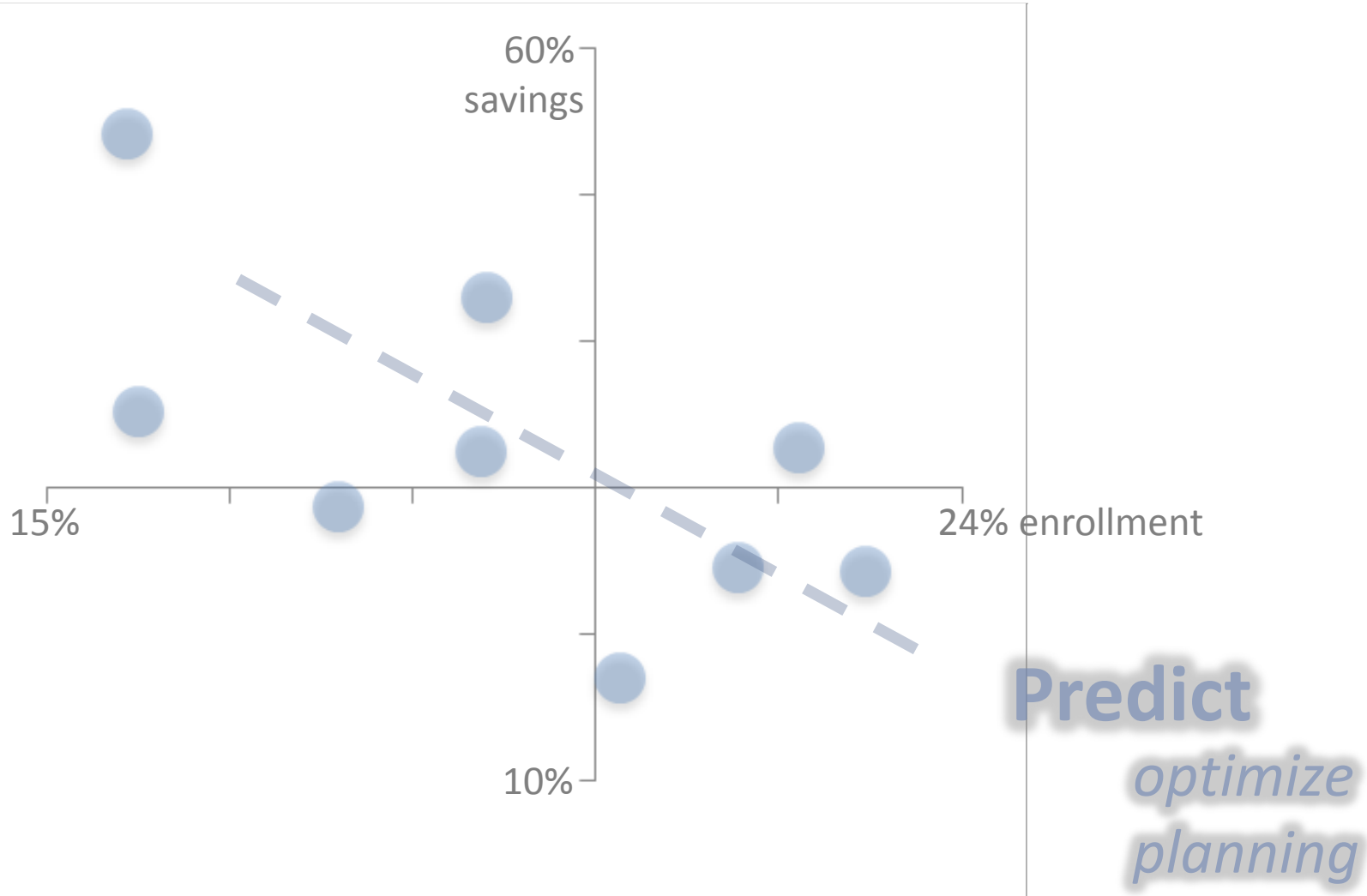


# But actually – people that enroll more save *less* energy!

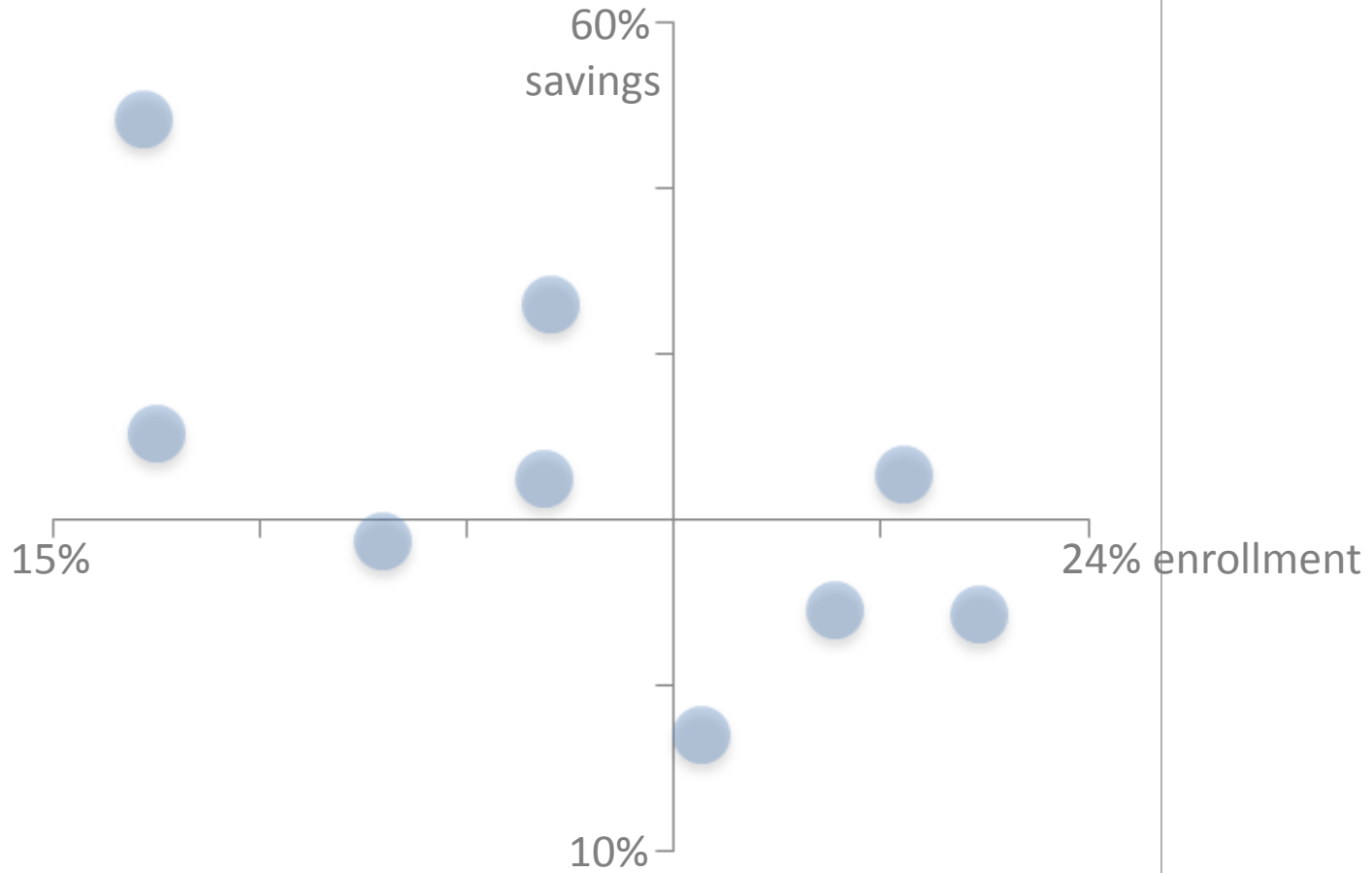




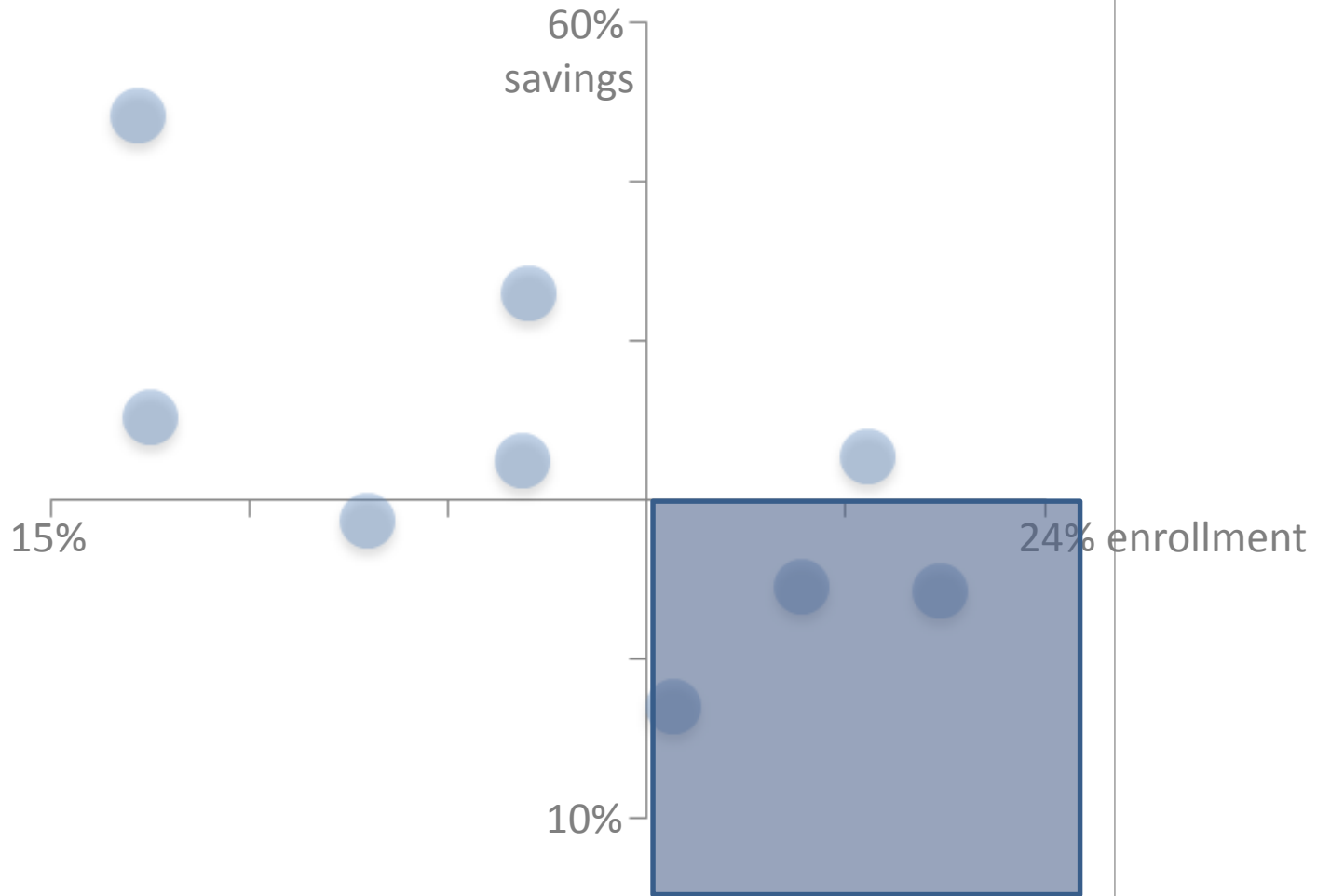
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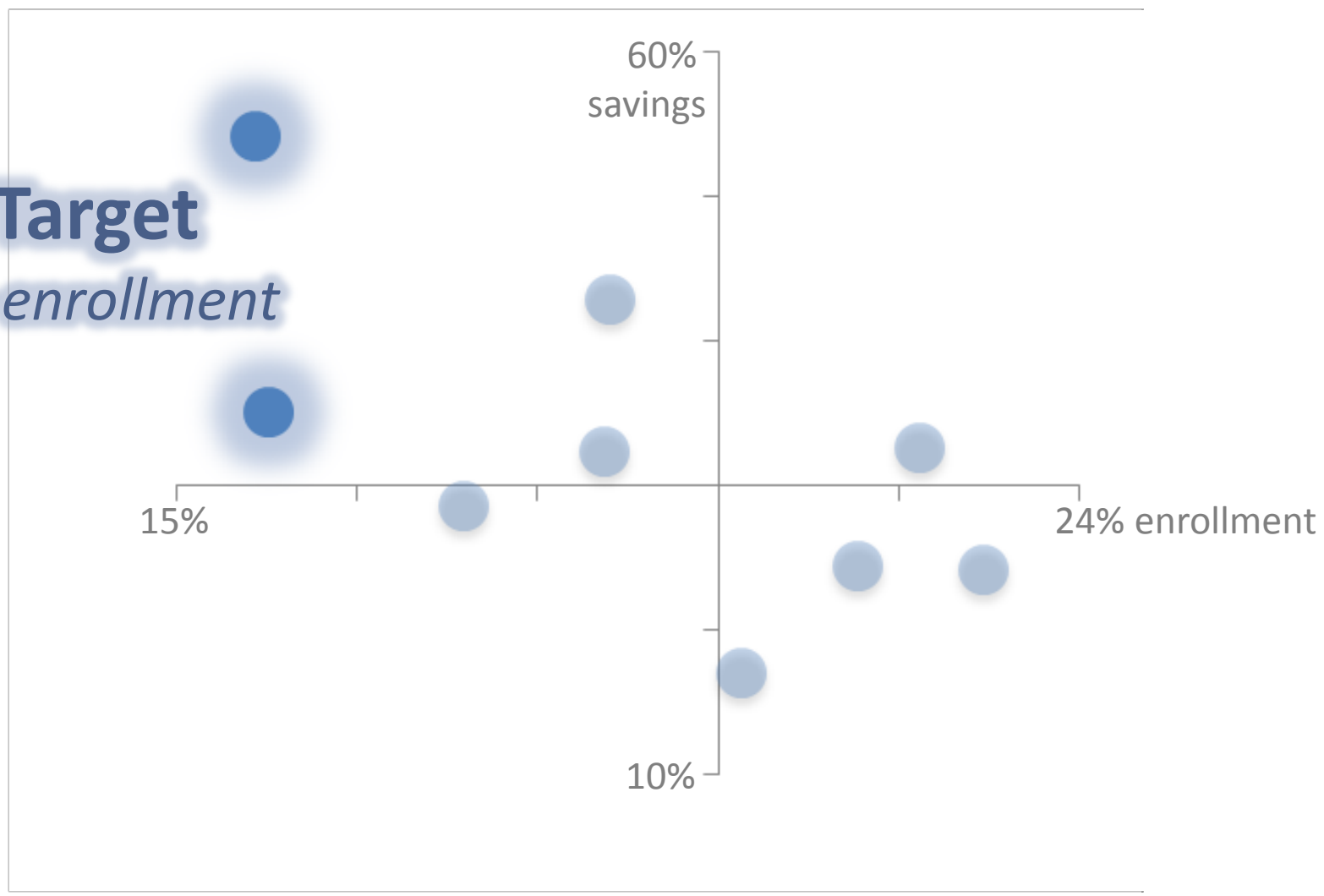


Actually – these are the people that automatically get lower bills actually deliver high energy savings.

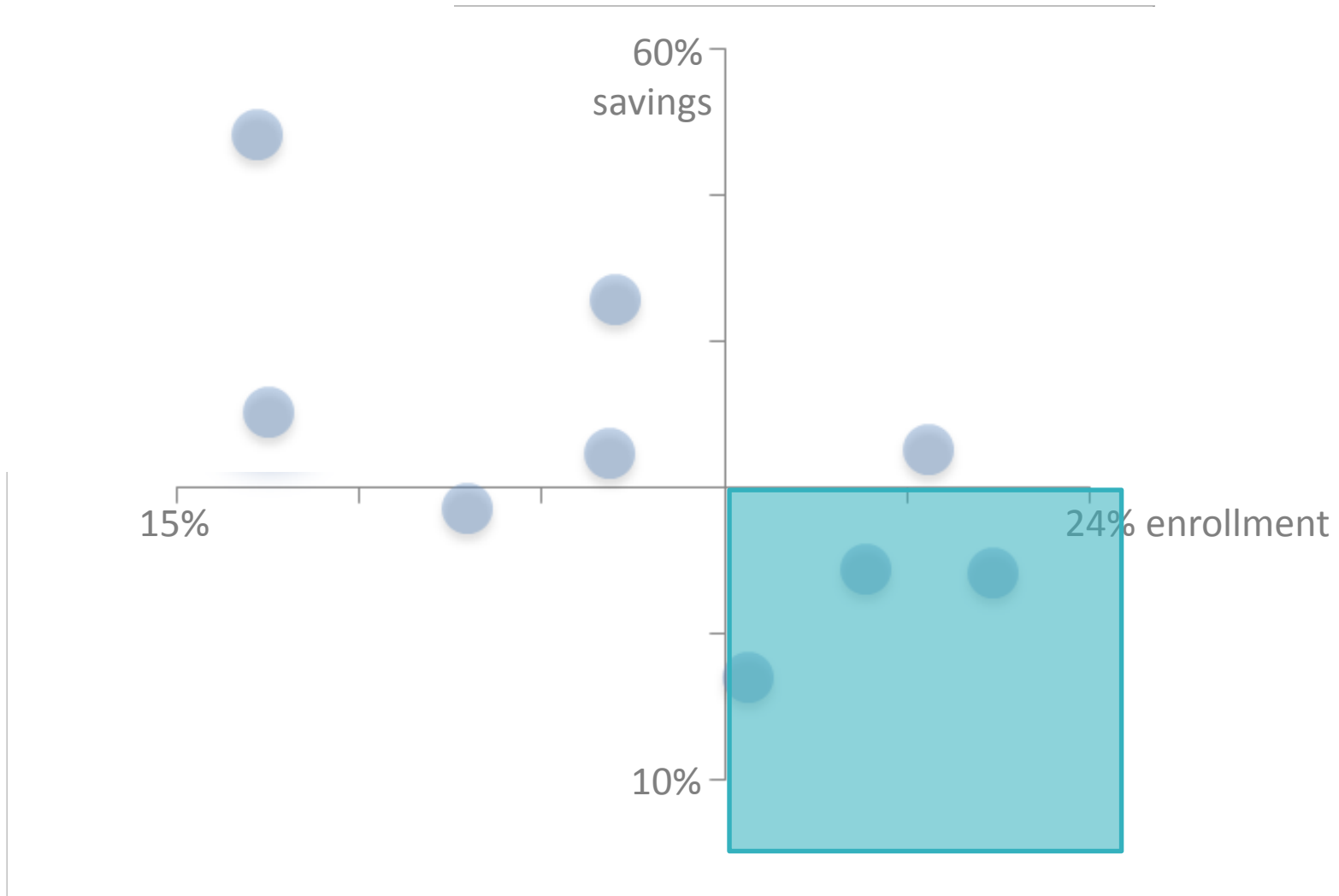
→ Let's get them to enroll! Tell them they'll save \$!



**Target**  
→ enrollment

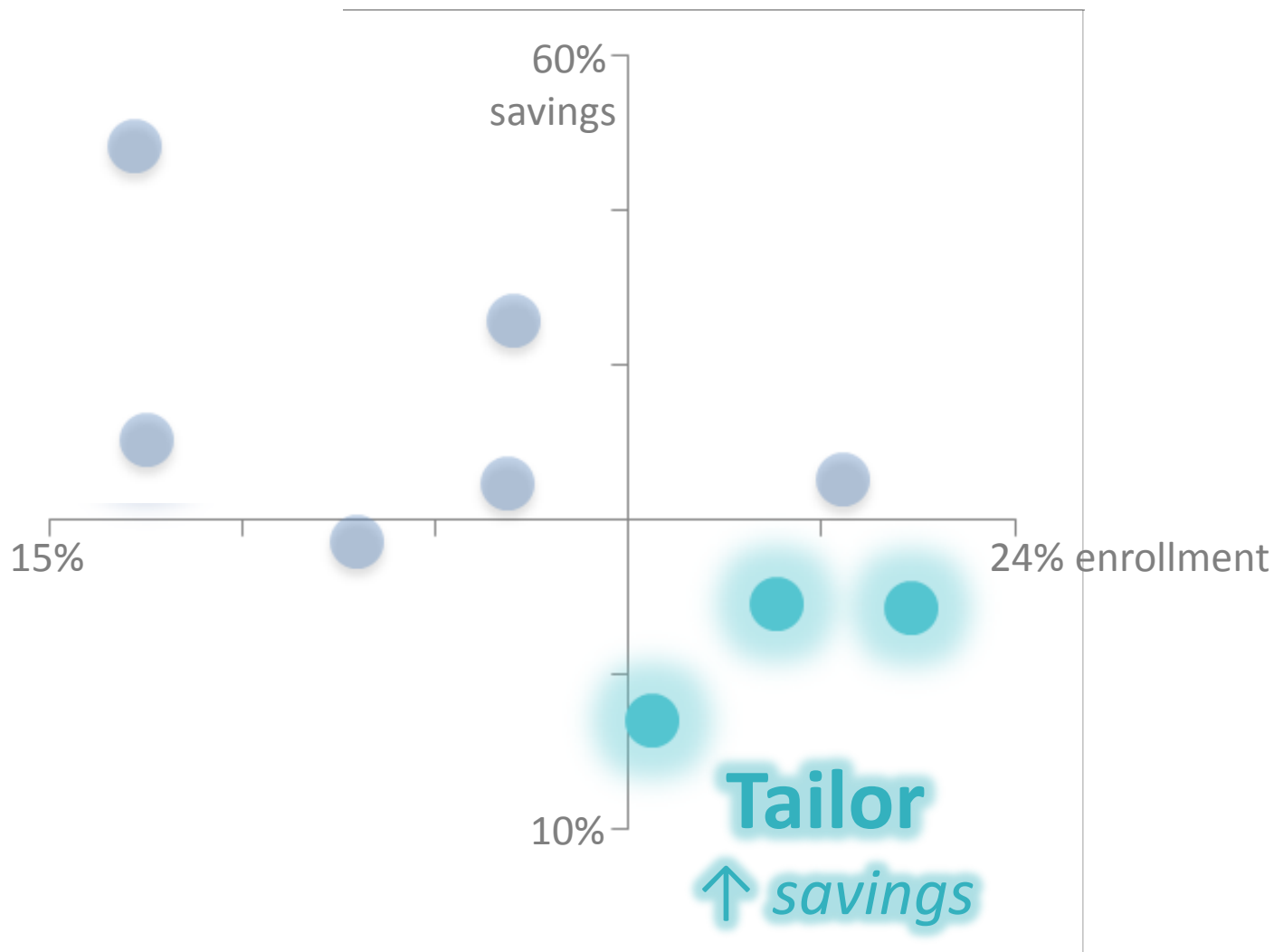


# So who are these people who enroll and don't save much?



These people have flexible energy schedules (maybe *want* to save). **Let's help them save!**

**Tailor the program to fit their needs!**



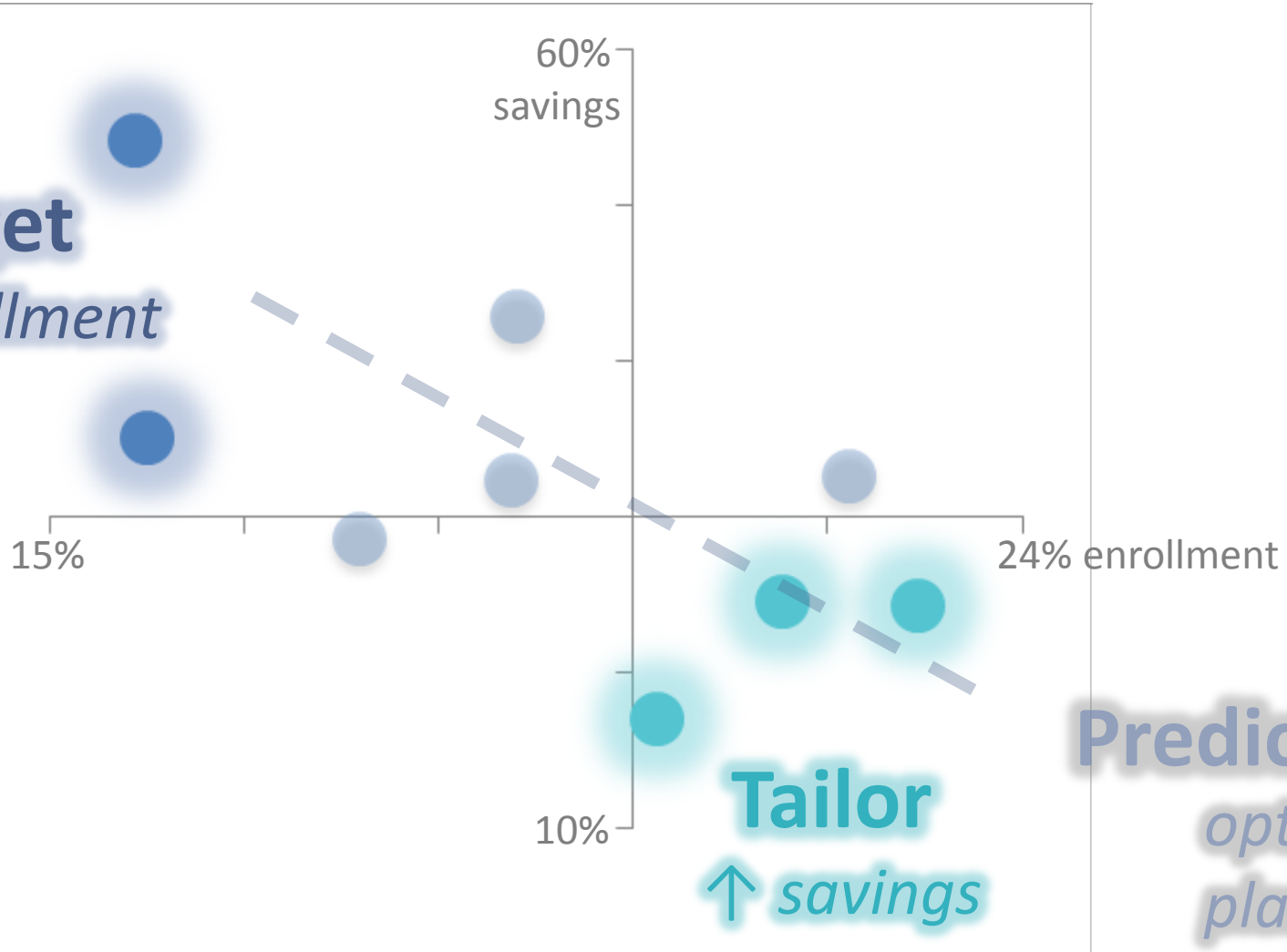
Target to ↑ enrollment of high savers

Tailor programs to ↑ savings of high enrollers

Predict to optimize program planning



**Target**  
→ enrollment

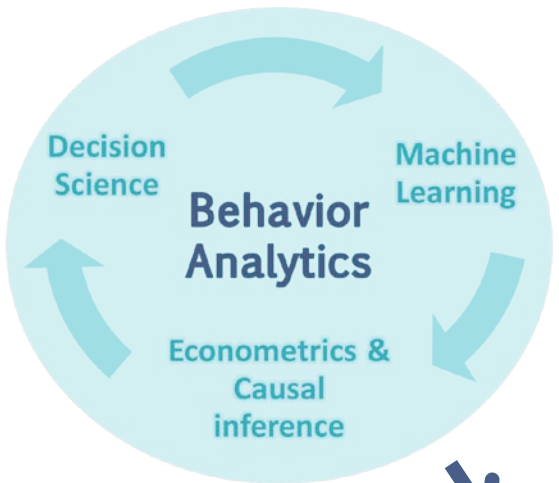


**Predict**  
*optimize  
planning*





Behavior Analytics: it **works**, it's **cheap**, it can be done **today!**



**understand** people & their energy use

**Target** **Tailor** **Predict**

programs that **deliver what we need!**



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