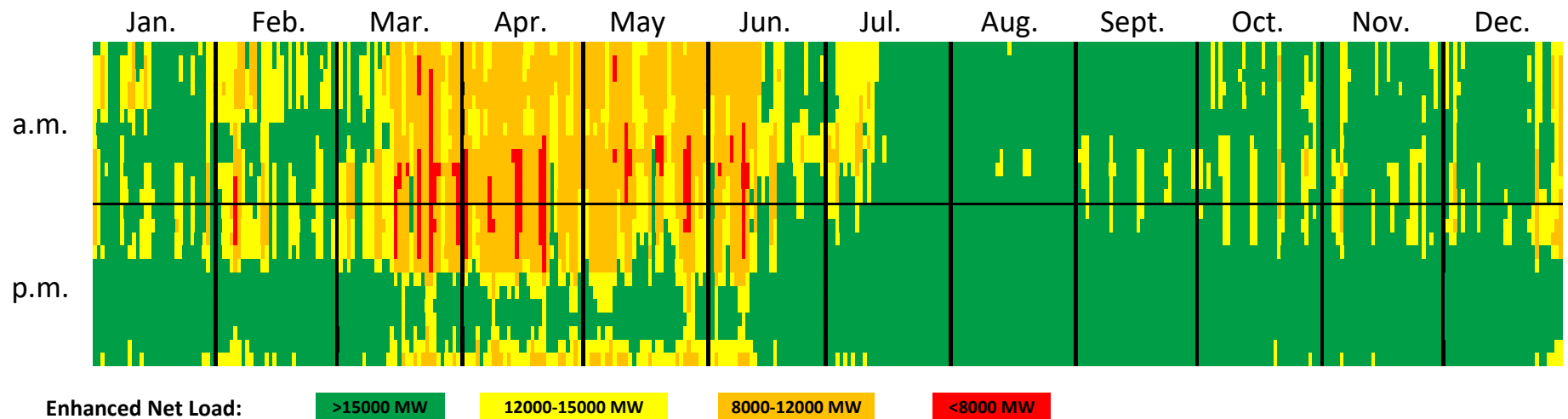




Excess Supply Pilot Introduction

July 2016

Projected needs for downward flexibility (2022)



- **86% of hours <8000MW in March, April, or May**
- **48% of hours <8000MW on Saturday, 24% on Sunday**
- **Frequent large evening ramps in November-March**

Outline



1. Design

2. Products

3. Requirements

4. Settlements

Excess-supply Pilot (XSP) Design Features



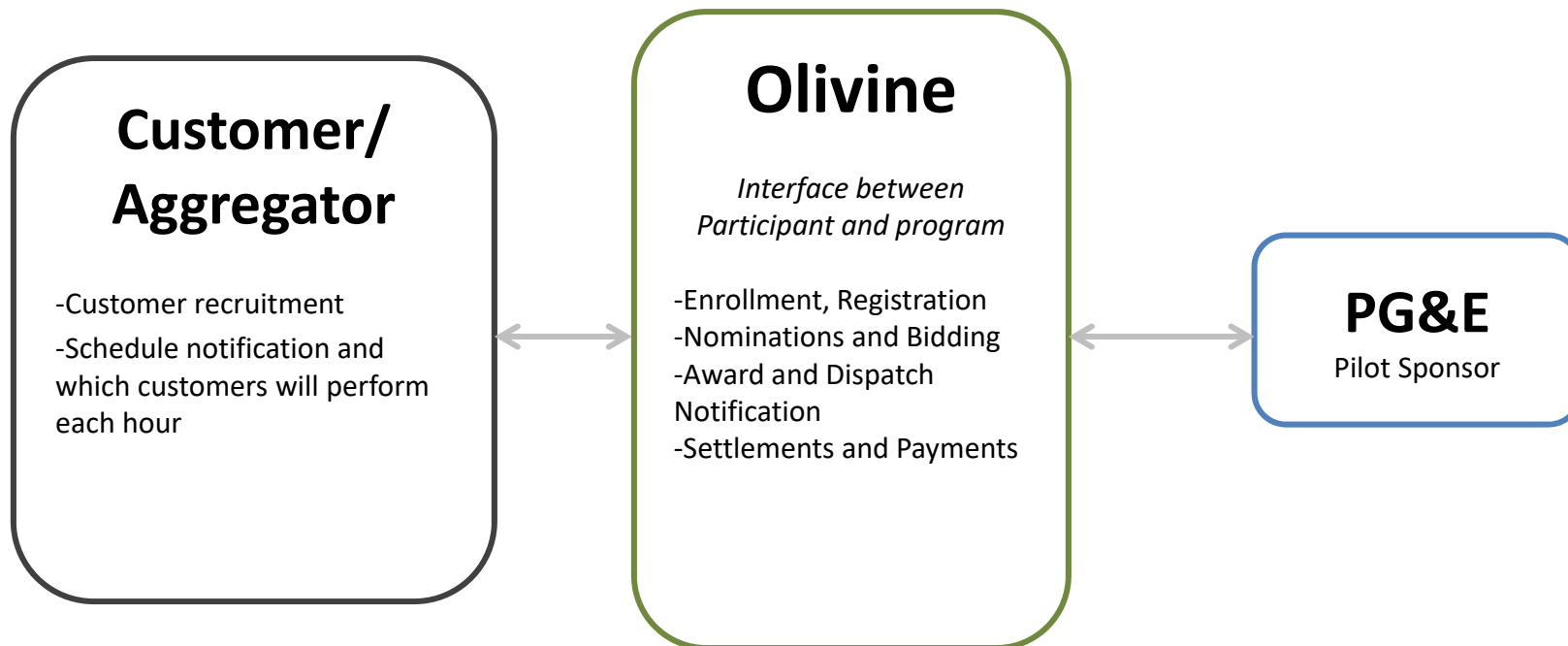
- Participants will
 - Receive day-ahead or day-of notice
- Performance calculated with a baseline
- Up to \$10/kW-month capacity payment from meeting ongoing pilot requirements
- Dispatches will be 1 or 2-hours in duration
- XSP can share SSP aggregations
 - Specific limitations will be covered later

XSP Participation



- Participants nominate a monthly kW capacity and availability times
- Availability:
 - 4 hours daily
 - Weekdays, weekends, or both
- Notifications in the day-ahead and may transition to day-of
- OpenADR optional

Roles

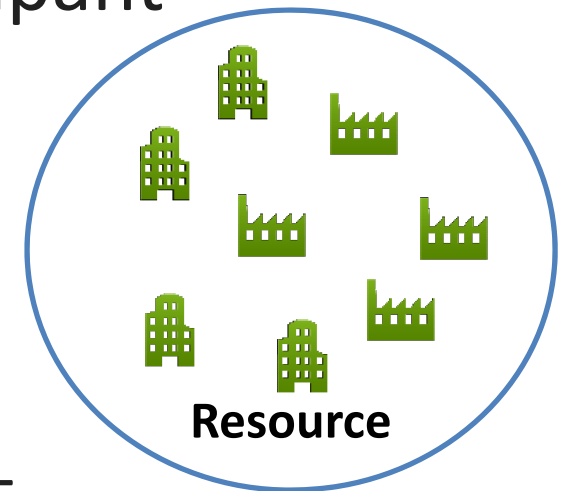


Design > Products > Requirements > Settlement

Eligibility Criteria



- Similar to PDR requirements
- One or two resources per participant
- Locations cannot be speculative
- All locations are
 - Located in the same Sub-LAP
 - Preferably, served by the same LSE
- Each resource must be able to provide two **(2)** consecutive hours of 30 kW increased consumption



Eligibility Criteria



- Underlying customers may **not** be on any other DR program or rate (aside from SSP)
 - Including PDP / SmartRate
 - Must first de-enroll
- Customer may have a demand-charge rate; however, there is no pilot energy compensation or bill mitigation offered by the pilot.

XSP Nominations



- Participants nominate a monthly kW capacity and availability times
- Availability:
 - 4 hours either in one 4-hour block or two 2-hour blocks
 - Blocks cannot span midnight and may not overlap with 7-9 AM nor 6-8 PM
 - Can participate in either weekdays, weekends, or both
 - Hours can differ between weekdays and weekends
 - Friday can be considered a weekday or a weekend

XSP Participation Examples



- Examples of nominations into the XSP, all using a 100 kW capacity

M-Su: 8 PM-12 AM

M-F: 8 PM-12 AM; Sa-Su: 3 AM-7 AM

M-Th: 8 PM-12 AM; F-Su: 3 AM-7 AM

M-F: 2 PM-4 PM, 8 PM-10 PM; Sa-Su: 3 AM - 7 AM

M-Th: 8 PM-12AM

Sa-Su: 3 AM-7 AM

XSP Participation Examples



- Examples of nominations into the XSP, all using a 100 kW capacity

Same hours throughout:

M-Su: 8 PM-12 AM

XSP Participation Examples



- Examples of nominations into the XSP, all using a 100 kW capacity

Different hours on the weekend:

M-F: 8 PM-12 AM; Sa-Su: 3 AM-7 AM

XSP Participation Examples



- Examples of nominations into the XSP, all using a 100 kW capacity

Friday is treated like a weekend:

M-Th: 8 PM-12 AM; F-Su: 3 AM-7 AM

XSP Participation Examples



- Examples of nominations into the XSP, all using a 100 kW capacity

Two blocks instead of one:

M-F: 2 PM-4 PM, 8 PM-10 PM; Sa-Su: 3 AM - 7 AM

XSP Participation Examples



- Examples of nominations into the XSP, all using a 100 kW capacity

Only weekdays:

M-Th: 8 PM-12AM

XSP Participation Examples



- Examples of nominations into the XSP, all using a 100 kW capacity

Only weekends:

Sa-Su: 3 AM-7 AM

XSP Participation



- The number of available days impacts price and expectation of dispatch

# of days	Expected events / month	\$/kW-month
2	2 – 4	\$5
3	3 – 5	\$6
4	4 – 6	\$7
5	5 – 7	\$8
7	7 – 9	\$10

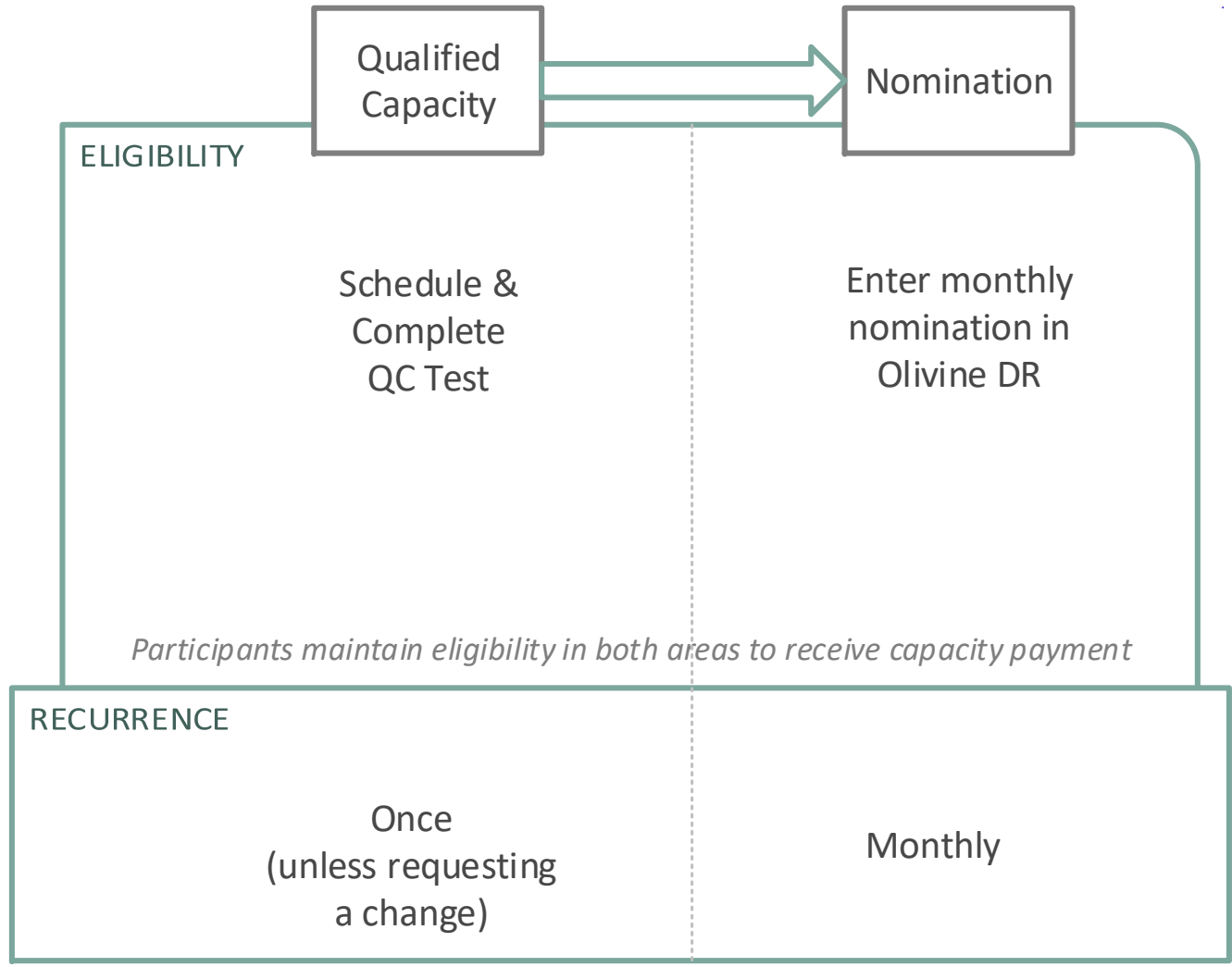
- Resources **will** be dispatched

Pilot limitations



- Total capacity award may be limited
- All underlying customers must be interval metered
 - Limits on number of locations
 - Limits on registration changes

Pilot Requirements (Overview)



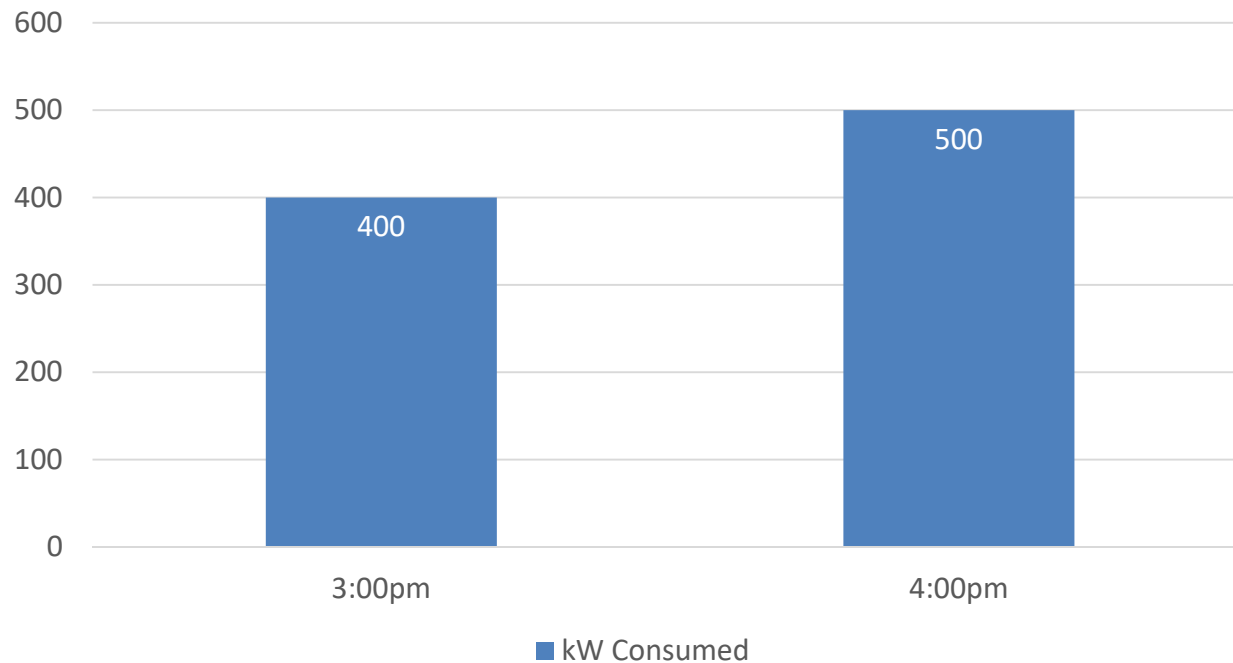
Design > Products > Requirements > Settlement

Qualified Capacity (QC)



- QC = Max quantity that can be nominated into XSP
- Test of average additional energy consumed over the period

$(400 + 500) / 2 = 450 \text{ kW Qualified Capacity}$



Design > Products > Requirements > Settlement

Nomination



- The nomination quantity is a commitment to deliver additional energy for the pilot
- Forms the basis of the monthly capacity payment
- Nominations cannot exceed qualified capacity value (QC)

How is performance measured?

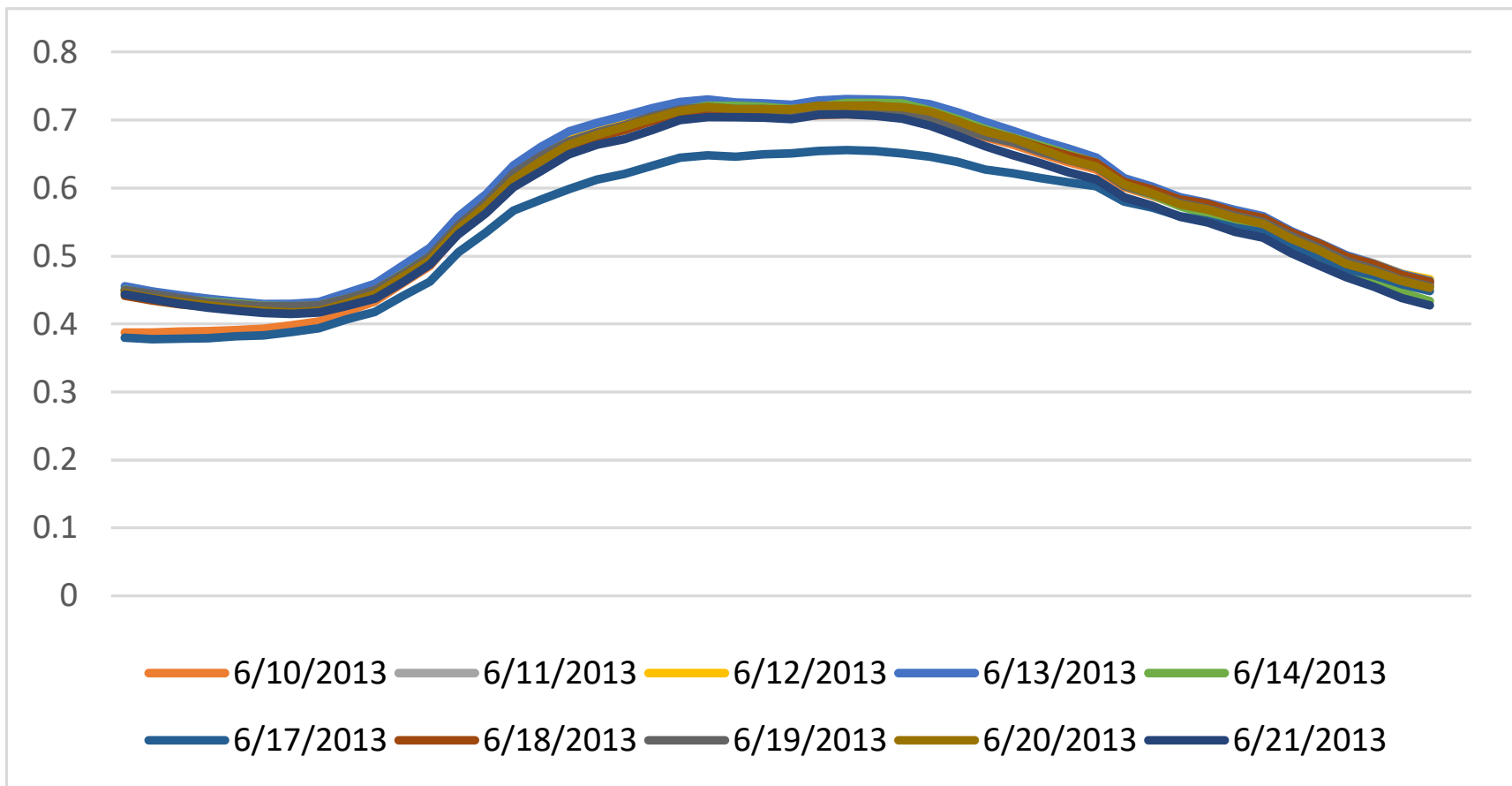


- Utilizing same “10-in-10” Baseline as in SSP
- Uses average of the **whole premises (i.e., no sub-metering)** meter data
- Delivery = Load minus baseline

Baseline Step #1



- Identify 10 similar, non-event days

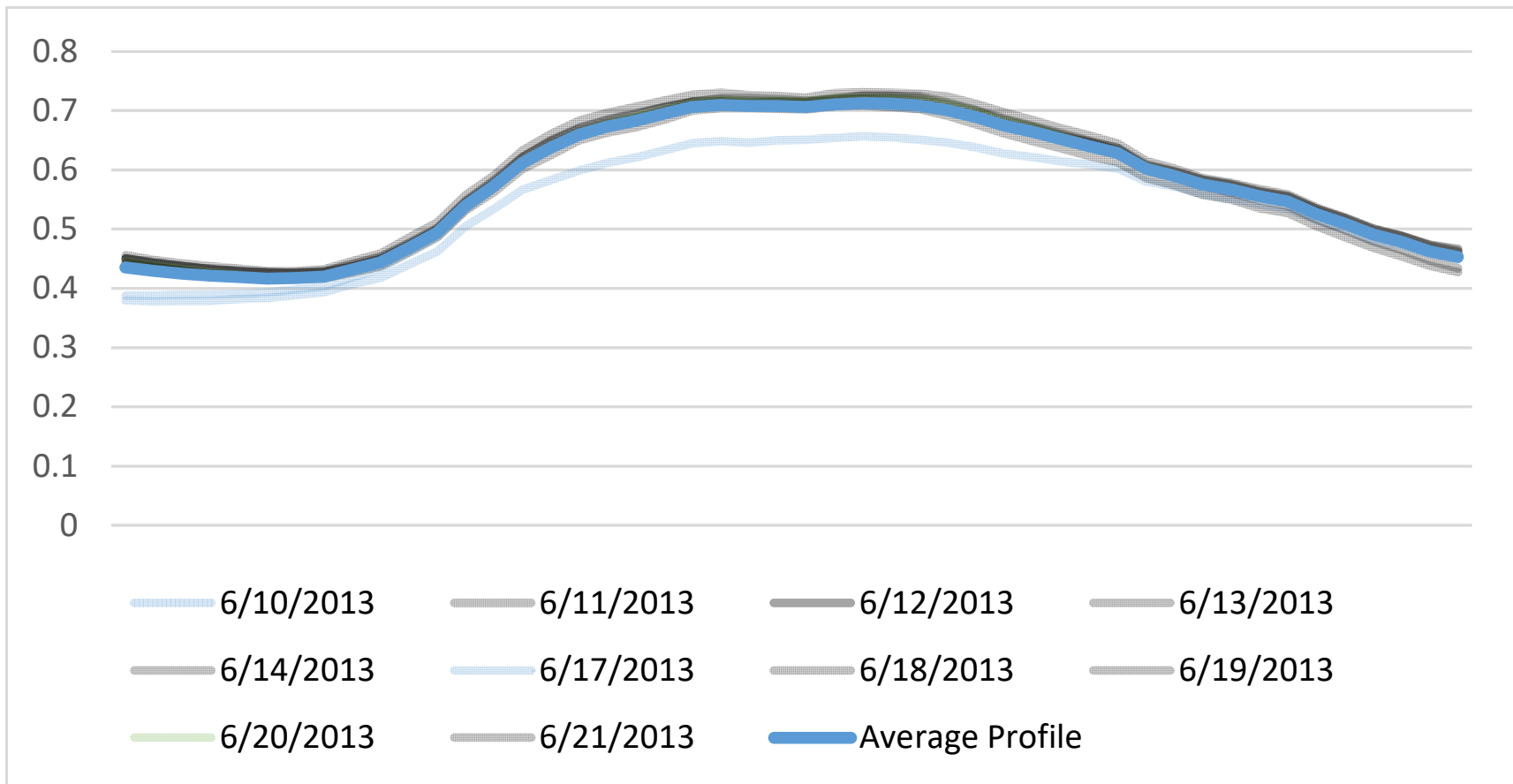


Design > Products > Requirements > Settlement

Baseline Step #2



- Calculate Average Profile

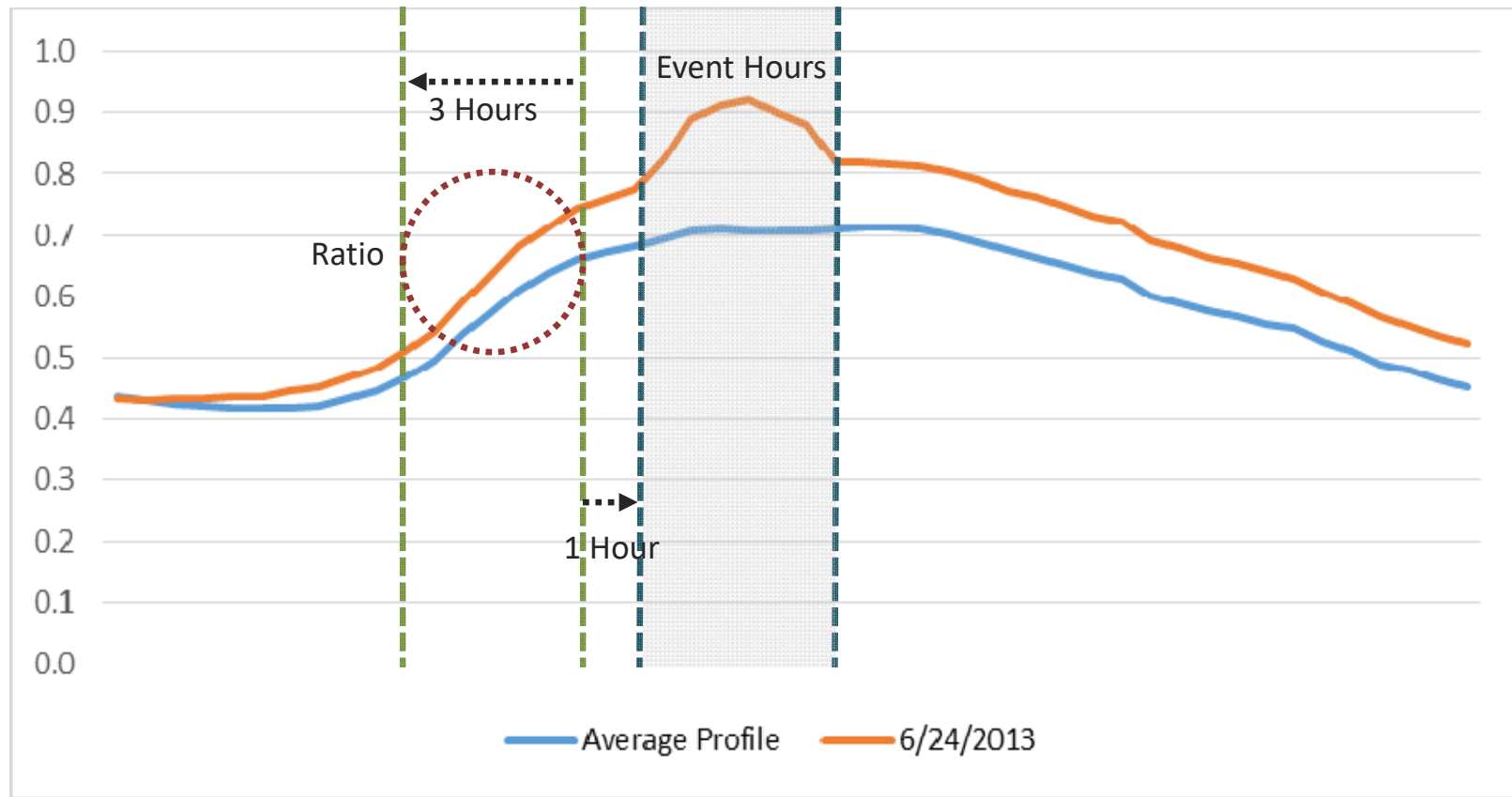


Design > Products > Requirements > Settlement

Baseline Step #3



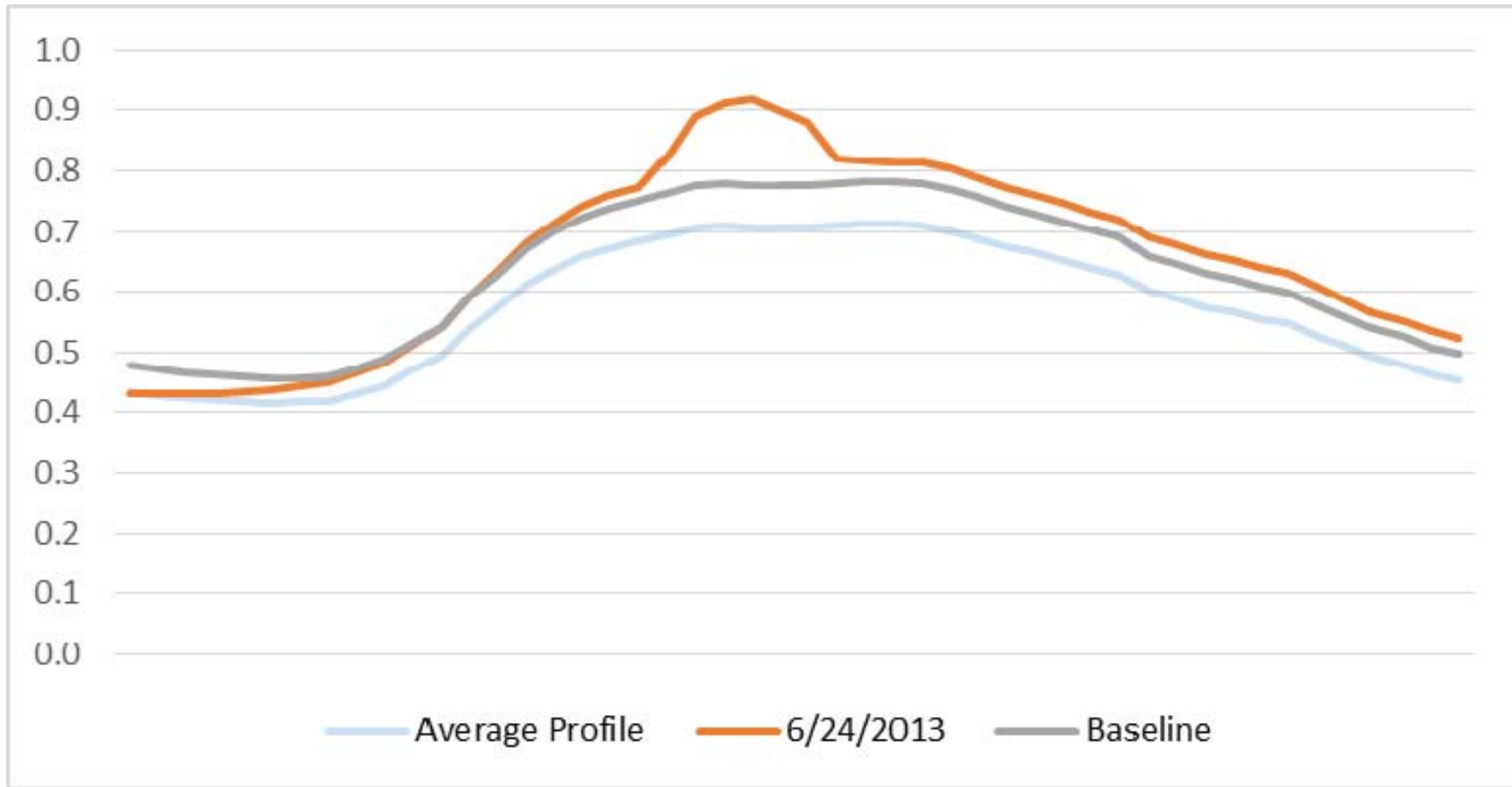
- Determine day-of adjustment



Baseline Step #4



- Apply day-of adjustment to create baseline

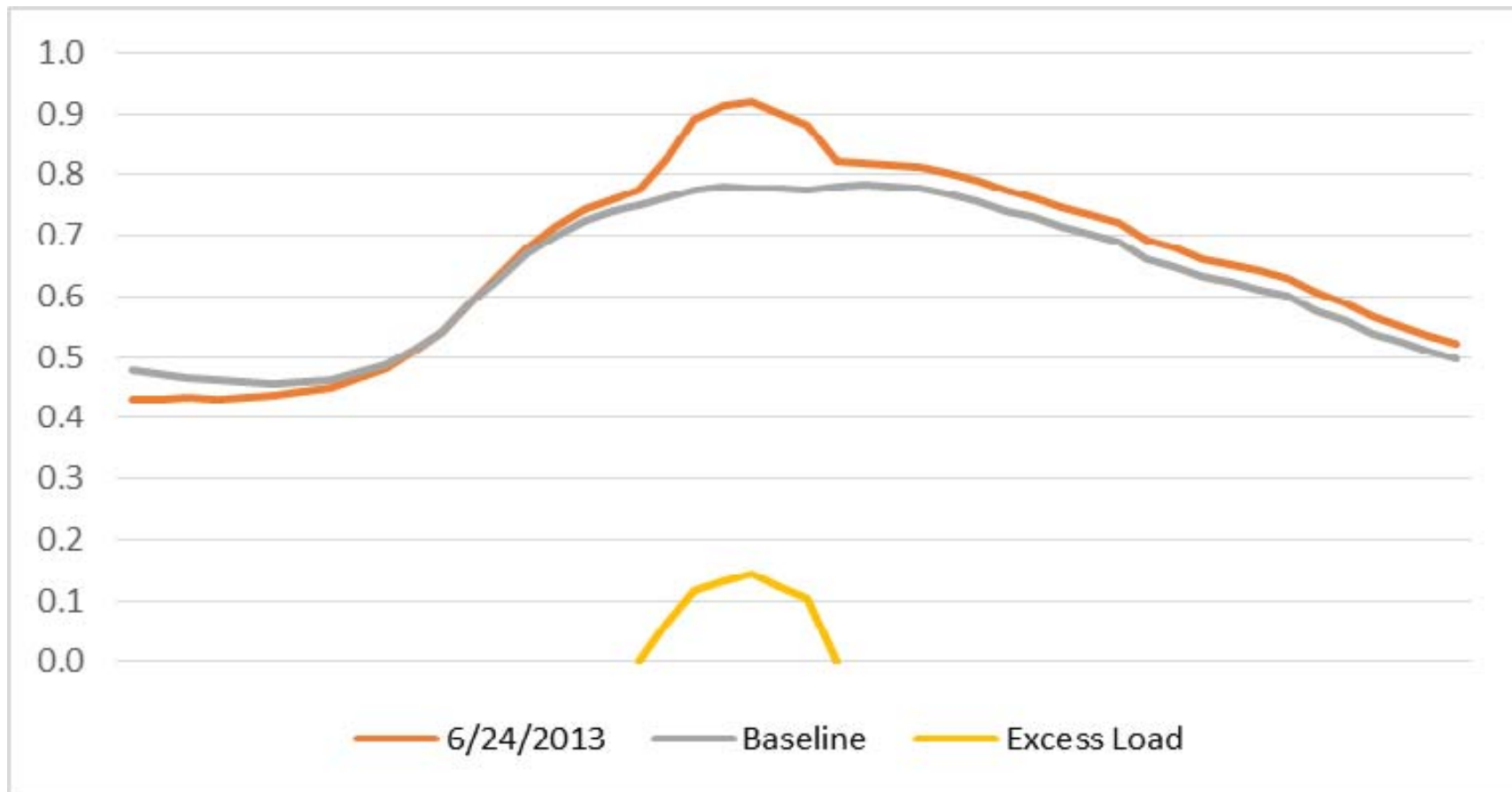


Design > Products > Requirements > Settlement

Performance Calculation



- Event period minus baseline



Design > Products > Requirements > Settlement

Settlement



Sources of revenue for XSP:

Capacity Payments: Dependent on fulfillment of pilot requirements above and performance

There are no energy payments.

Note the pilot is intended to influence *when* energy is consumed, not *how much* energy is consumed.

Capacity Payments



- If monthly pilot requirements are met, then:

Capacity payment =

[Capacity Price] x [Nomination] x [Monthly Performance]

- **Capacity Price:** \$5-\$10/kW-month
- **Nomination:** Monthly kW number chosen by participant
- **Monthly performance:** Weighted average of all hourly performance values

Hourly Performance Tiers



- Performance values rounded up for settlement:

Raw Performance	Adjusted Performance
$0.50 < x$	1.00
$0.25 < x \leq 0.50$	0.50
$0 < x \leq 0.25$	0.25
$x \leq 0$	0

What is the Supply Side Pilot?



- A related demand curtailment pilot that includes wholesale market integration.
- Participants nominate capacity with corresponding energy bids, in 4-hour blocks per day, 18 days a month
- Participants earn capacity and wholesale energy payments
- Day-ahead energy, real-time energy, and A/S opportunity

XSP / SSP Interaction



- XSP resources can be shared with SSP
 - To be shared, must include same customers
 - Must be served by the same LSE
- SSP bidding limited by XSP availability
 - Must be at least 4-hours between availability
 - For example:
 - XSP is 8PM-Midnight, SSP cannot be bid after 4PM
 - XSP is 3AM-7AM, SSP cannot be bid before 11AM
- Performance calculations will be independent

Enrollment Process	Responsible	Deadline (in Calendar time before the first trade date, T)
Declaration of Interest Form	Participant	
Enrollment Workbook, CISR Form, Customer Acknowledgement Forms (<i>Aggregators only</i>), Pilot Contact Form	Participant	T – 5 weeks
PG&E Eligibility Check	PG&E	T – 4 weeks
Participation Agreement Executed	Participant	T – 4 weeks
Pilot Training	Participant, Olivine	T – 2 weeks
Qualified Capacity Test	Participant, Olivine	T – 1 weeks
Hands-on Training	Participant, Olivine	T – 1 week
>>>Begin Operations		T

Timelines



- XSP Participation
 - Declarations of Interest as soon as feasible
 - February 1: First Operational Start

Conclusion: *Participant Next Steps*



- Complete DOI forms (if haven't already)
 - 2 resources per participant, with limits on capacity & number of locations
- Complete enrollment forms ASAP
- Contact:
 - XSPadmin@olivineinc.com
 - <http://olivineinc.com/xsp/>