Time-Varying Rates Pilot Year One Findings

Interested Parties Collab #2

July 7, 2025

PUGET SOUND ENERGY

Introductions & Ground Rules

Presenters:

- **Kevin Rivard**, Product Development Manager, PSE (Kevin.Rivard@pse.com)
- **David Ladd,** Associate, Energy Services, Cadmus (David.Ladd@cadmusgroup.com)

Ground Rules:

- Meeting is being recorded; please mute yourself
- Come with a clean slate and open mind
- Engage constructively and courteously towards all participants
- Respect the role of the presenters to guide the discussion
- Avoid use of acronyms and explain technical questions
- Leave the meeting with a clear sense of next steps

Welcome to our Virtual Meeting!

Use the **Reactions** feature to respond to content with emojis

Participants are welcome to use the **Chat** feature to ask questions

Use **Raise Hand** feature if you'd like to provide a comment or ask a question

Agenda

- Safety Moment
- Pilot Year One Bill Analysis Findings
- Transition Phase Timeline
- Next Steps

Safety Moment

Camping Safety: Be Prepared, Stay Alert, Enjoy Responsibly

Key Safety Points:

Fire Safety

- Always check fire restrictions before your trip
- Keep campfires small and never leave them unattended
- Have water and dirt nearby to extinguish fires completely
- Stir ashes until cold before leaving your campsite

Food and Wildlife

- Store food in bear-proof containers or hang it properly
- Never feed wildlife - it's dangerous for both you and the animals
- Keep a clean campsite to avoid attracting unwanted visitors

Weather Preparedness

- Check weather forecasts and be prepared for sudden changes
- Pack appropriate clothing for temperature drops
- Know the signs of hypothermia and heat-related illness
- Have a plan for severe weather

Year One Bill Analysis Findings

Summary of Key Findings

Ex Ante analysis (TOU only): Assuming no behavior change, who *structurally benefits or loses* on TVR rates?
- **307 and 317:** There are **more structural losers than winners**, but the mean difference is small.
- **327 and 324:** There are **more structural winners than losers**. The mean differences are larger.

Ex Post analysis (TOU only): *Modeled* impacts including behavior changes and weather
- **Most rate groups** were close to **50/50 "winners and losers"**, though **on average households pay less with TVR**
- **327 customers pay substantially less with TVR** (average $287/year)

Shadow Bill analysis (TOU only): *Actual billed usage* on TVR compared to what they would pay on standard rates
- Aligns with ex post analysis, **most rate groups** were close to **50/50 "winners and losers"**, though **on average households pay less with TVR**, and **327 customers pay substantially less with TVR** (average $225/year)

Shadow Bill analysis for Bill Protection / BDR customers (TOU only):
- **BDR customers with and without Bill Protection achieved similar results for most groups**
  - On average, 307 BDR participants without saved $25/year more than those with, though the median amounts differed by only about $1/year.
  - For 317 and 327 BDR participants, average savings for participants with and without differed by less than $4/year.

Bill Protection credits for customers (TOU accounting for PTR):
- **12% of 307 and 11% of 317 customers are eligible for Bill Protection credits (35 customers total)**, averaging $19/year apiece. None of the 327 customers on Bill Protection are eligible for a credit.

PTR event rebates: 317 and 324 participants also earned credits for reducing load during PTR events
  - More than **90% in every group received some PTR credit, averaging about $4/year**

Billing Analysis Methods

Ex Ante Bill Analysis

- Shows distribution of expected bill impacts assuming no behavior change (no load shifting due to TVR; no non-pilot consumption changes) using AMI data
- Interpretation: What percentage of participants structurally benefit from TVR, even without any behavior change?

Ex Post Bill Analysis

- Shows distribution of estimated bill impacts given TVR behavior change, based on pre-TVR customer specific modeled consumption using AMI data
- Controls for weather, but cannot control for individual, non-pilot consumption changes such as occupancy or added loads like EVs.

"Shadow Bill" Analysis

- Calculates how much each TVR participant's actual, annual PY1 consumption would have cost on standard rates based on usage reported on their bills; this analysis only compares differences in billed energy charges
- BDR participants who received Bill Protection get refund on the difference in their total annual energy charges (between Sch. 7 and TVR) if they paid 10%+ more under TVR than they would on the standard rate

Ex Ante Bill Impacts

Assuming **no load shifting**, how many participants are expected to pay more, or less, than they would have if they stayed on Schedule 7?

Table below shows percentiles of *ex ante* bill impacts. Negative values are increases, positive values are decreases, relative to remaining on Schedule 7. Results are TOU impacts only, and PTR credits are not applied.

Most small non-residential participants (Schedule 324) are expected to save on their annual bills even without any load shifting (structural winners). Absent load shifting, participants on Schedules 307 and 317 are expected to have slightly larger average bills.

Schedule	Structural Losers	Structural Winners
307 Income Eligible	68%	32%
307 Income Ineligible	64%	36%
317 Income Eligible	77%	23%
317 Income Ineligible	76%	24%
327 Super off-peak	41%	59%
324 Nonresidential	25%	75%

SCHEDULE	0% (Minimum)	10%	20%	30%	40%	50% (Median)	60%	70%	80%	90%	100% (Maximum)	Mean
307 Income Eligible (n=1,390)	$(365.75)	$(96.55)	$(65.47)	$(49.03)	$(37.57)	**$(26.47)**	$(13.51)	$2.78	$27.45	$64.02	$951.39	**$(17.02)**
307 Income Ineligible (n=1,683)	$(482.77)	$(83.40)	$(57.23)	$(44.78)	$(33.33)	**$(21.00)**	$(8.15)	$11.46	$44.41	$97.04	$763.06	**$(5.08)**
317 Income Eligible (n=2,202)	$(190.08)	$(66.14)	$(53.07)	$(45.41)	$(37.39)	**$(30.71)**	$(21.88)	$(12.08)	$5.08	$42.96	$625.05	**$(17.50)**
317 Income Ineligible (n=2,394)	$(270.44)	$(65.01)	$(53.95)	$(45.86)	$(38.15)	**$(30.43)**	$(21.80)	$(9.46)	$9.27	$47.91	$1,976.77	**$(15.78)**
327 (n=869)	$(571.24)	$(84.50)	$(47.57)	$(22.72)	$(1.52)	**$19.00**	$48.42	$80.55	$139.36	$215.90	$857.60	**$47.55**
324 (n=722)	$(129.41)	$(11.36)	$(2.11)	$4.17	$15.29	**$48.19**	$91.03	$153.58	$245.40	$482.34	$2,289.20	**$153.94**

Ex Post Bill Impacts

A comparison of actual bills to **modeled bills**. Modelling based on weather and pre-existing behavioral patterns, but does not control for individual, non-pilot consumption changes such as occupancy or added loads like EVs

Table below shows *differences between participant and matched non-participant impacts*. Results are TOU impacts only, and PTR credits are not applied.

On average, after load-shifting, participants saved money on TVR relative to an estimate of what their bills would have been under Schedule 7

- Income Eligible saved less than Income Ineligible on the same rate (lower means)
- Income Eligible medians were close to zero, Sch. 327 had the highest median and mean savings

Schedule	TVR Paid More	TVR Paid Less
307 Income Eligible	50%	50%
307 Income Ineligible	43%	57%
317 Income Eligible	51%	49%
317 Income Ineligible	47%	53%
327 Super off-peak	27%	73%
324 Nonresidential	47%	53%

SCHEDULE	10%	20%	30%	40%	50% (Median)	60%	70%	80%	90%	Mean
307 Income Eligible (n=1,390)	$(435.72)	$(244.72)	$(130.54)	$(63.24)	$(1.03)	$71.62	$159.78	$302.76	$535.95	**$27.88**
307 Income Ineligible (n=1,683)	$(359.75)	$(177.55)	$(94.61)	$(22.24)	$39.51	$105.57	$191.67	$341.55	$628.63	**$89.34**
317 Income Eligible (n=2,202)	$(471.04)	$(236.49)	$(126.65)	$(54.90)	$(2.56)	$60.73	$127.69	$224.77	$426.67	**$3.04**
317 Income Ineligible (n=2,394)	$(400.67)	$(213.57)	$(116.87)	$(45.29)	$12.33	$76.49	$170.88	$295.48	$549.41	**$43.80**
327 (n=869)	$(313.92)	$(80.22)	$31.26	$133.93	$233.83	$347.49	$486.16	$663.74	$933.33	**$286.73**
324 (n=722)	$(582.33)	$(281.47)	$(135.44)	$(36.46)	$18.59	$70.08	$172.58	$381.98	$696.45	**$42.91**

These results reflect TOU only. PTR credits not applied

“*Shadow*” Bill Impacts – All Participants

How much more/less did participants pay under TVR compared to what they would have under Sch. 7 or 24 **based on actual Year 1 usage**?

Table below shows percentiles of “shadow” bill impacts. Negative values are increases, positive values are decreases, relative to remaining on Schedule 7. Results are TOU impacts only, and PTR credits are not applied.

On average, residential participants saved money on their annual bills while under TVR (positive means) though the distribution is skewed more for Sch. 317 (slightly negative medians). Sch. 327 customers saved the most, on average Sch. 324 did not save.

Schedule	TVR Paid More	TVR Paid Less
307 Income Eligible	53%	47%
307 Income Ineligible	44%	56%
317 Income Eligible	66%	34%
317 Income Ineligible	56%	44%
327 Super off-peak	13%	87%
324 Nonresidential	44%	56%

SCHEDULE	0% (Minimum)	10%	20%	30%	40%	50% (Median)	60%	70%	80%	90%	100% (Maximum)	Mean
307 Income Eligible (n=1,237)	$(259.11)	$(60.88)	$(40.24)	$(27.22)	$(16.57)	$(5.23)	$9.12	$38.45	$81.00	$167.61	$1,060.74	**$32.14**
307 Income Ineligible (n=1,665)	$(391.34)	$(46.64)	$(29.82)	$(19.38)	$(7.31)	$13.69	$43.74	$78.80	$138.56	$233.47	$1,484.11	**$61.24**
317 Income Eligible (n=1,947)	$(134.49)	$(48.13)	$(39.36)	$(32.26)	$(25.58)	$(17.86)	$(7.67)	$9.10	$37.22	$90.72	$1,010.65	**$6.95**
317 Income Ineligible (n=2,252)	$(163.32)	$(46.44)	$(36.66)	$(28.48)	$(19.34)	$(8.31)	$8.68	$34.50	$72.75	$132.70	$1,931.47	**$26.24**
327 (n=999)	$(155.48)	$(11.29)	$21.01	$71.53	$115.55	$169.39	$229.01	$298.34	$378.94	$511.02	$2,141.96	**$224.65**
324 (n=1,069)	$(960.36)	$(54.67)	$(26.67)	$(10.81)	$(2.37)	$2.40	$6.13	$13.40	$22.86	$41.21	$340.85	**$(3.88)**

“*Shadow*” Bill Impacts – BDR Bill Protection

How much more/less did participants pay under TVR compared to **what they would have under Sch. 7 or 24 based on actual Year 1 usage**?

The table below shows percentiles and means for “shadow” bill impacts, with results split by rate and between TVR participants on **BDR <u>with</u> bill protection** and those on **BDR <u>without</u> bill protection**.

Negative values are increases, positive values are decreases, relative to remaining on Schedule 7. Results are TOU impacts only, and PTR credits are not applied.

Differences between “with” and “without” bill protection are small for 317 and 327 BDR groups (less than $4/year on average)

- On average, 307 BDR customers <u>without</u> bill protection saved $25/year more than those <u>with</u>, but the median results only differed by about $1/year

SCHEDULE (BDR only)	0% (Minimum)	10%	20%	30%	40%	50% (Median)	60%	70%	80%	90%	100% (Maximum)	Mean
307 Income Eligible with Bill Protection (n=105)	$(193.98)	$(54.07)	$(37.87)	$(27.38)	$(19.51)	$(5.85)	$2.98	$21.51	$45.00	$93.88	$211.05	**$7.46**
307 Income Eligible WITHOUT Bill Protection (n=166)	$(151.13)	$(66.34)	$(45.64)	$(28.85)	$(15.07)	$(6.96)	$2.75	$35.17	$65.35	$212.13	$702.72	**$32.57**
317 Income Eligible with Bill Protection (n=195)	$(111.46)	$(53.32)	$(41.81)	$(32.00)	$(27.70)	$(19.57)	$(13.11)	$5.91	$34.37	$82.10	$352.23	**$1.82**
317 Income Eligible WITHOUT Bill Protection (n=234)	$(76.38)	$(46.57)	$(40.54)	$(33.46)	$(26.02)	$(15.85)	$(6.82)	$8.72	$31.93	$75.78	$389.74	**$5.43**
327 with Bill Protection (n=17)	$(39.96)	$(17.63)	$(6.36)	$14.60	$69.30	$85.19	$110.29	$135.01	$272.76	$346.51	$527.37	**$131.12**
327 WITHOUT Bill Protection (n=20)	$(45.67)	$(15.51)	$7.56	$8.96	$18.91	$54.56	$86.29	$161.08	$241.34	$401.94	$589.88	**$133.57**

BDR Bill Protection Refund Credits

BDR participants who received Bill Protection get a refund on annual energy charges **if they paid more than 10% more under TOU Rates** than they would have under previous rates

Conclusion:

Most Bill Protection customers (89%) either spent *less* on their bills under TVR rates, or spent *less than 10% more* than under standard rates, thus **did not receive a credit**

35 customers out of 317 (11%) received a credit

On average, Sch. 307 customers received larger credits compared to Sch. 317 customers ($34 vs. $10/year). No Sch. 327 customers received a credit.

Schedule (all BDR with BP)	Credit Eligible (10%+ criteria)	No Credit
307 Income Eligible (n=105)	12.4%	87.6%
317 Income Eligible (n=195) *	11.3%	88.7%
327 Super Off-Peak (n=17)	0%	100%
Total (n=317)	11.0%	89.0%

Schedule (only those that received credit)	Total Amount	Average Amount	Max	Min
307 Income Eligible (n=13)	$437.70	$33.67	$104.37	$3.97
317 Income Eligible (n=22) *	$218.36	$9.93	$51.91	$0.04
327 Super Off-Peak (n=0)	N/A	N/A	N/A	N/A
Total (n=35)	**$656.06**	**$18.74**	**$104.37**	**$0.04**

These amounts are based on energy charges and do not include taxes.

Analysis includes all eligible BP customers, including those with fewer than 12 bills and/or who unenrolled.

** For Sch. 317 customers, the bill credit amount is based on TOU only (PTR credits are not included).*

Peak Time Rebates

Customers on 317 and 324 rates could receive additional credit on their bills for reducing usage during **PTR events in PY1**

Conclusion:
In **both seasons** more than 90% of residential customers earned PTR credits.

Customers on all PTR schedules receive higher average per participant PTR credits during the **winter season.**

On average across all participants and all events, customers in all 3 groups received about **$4/year in PTR event credits**, though individuals could receive much more (up to $97/year for one SMB participant)

Schedule (annual)	Total Amount	Average Amount	Max	Min
317 Income Ineligible (n=2,293)	$9,924.85	$4.33	$40.49	$0.01
317 Income Eligible (n=1,998)	$7,775.36	$3.89	$40.67	$0.01
324 Nonresidential (n=1,069)	$4,546.22	$4.25	$96.92	$0.01

Schedule (by season)	% receiving any credit	Total credit for PTR	Average per participant receiving credit
Winter season			
317 Income Ineligible (n=2,005)	92.8%	$3,457.80	$1.86
317 Income Eligible (n=1,852)	91.3%	$3,161.29	$1.87
324 Nonresidential (n=992)	86.5%	$1,730.03	$2.02
Summer season			
317 Income Ineligible (n=2,218)	93.7%	$6,467.04	$3.11
317 Income Eligible (n=1,940)	95.1%	$4,614.07	$2.50
324 Nonresidential (n=1,008)	93.1%	$2,816.19	$3.00

Conclusions

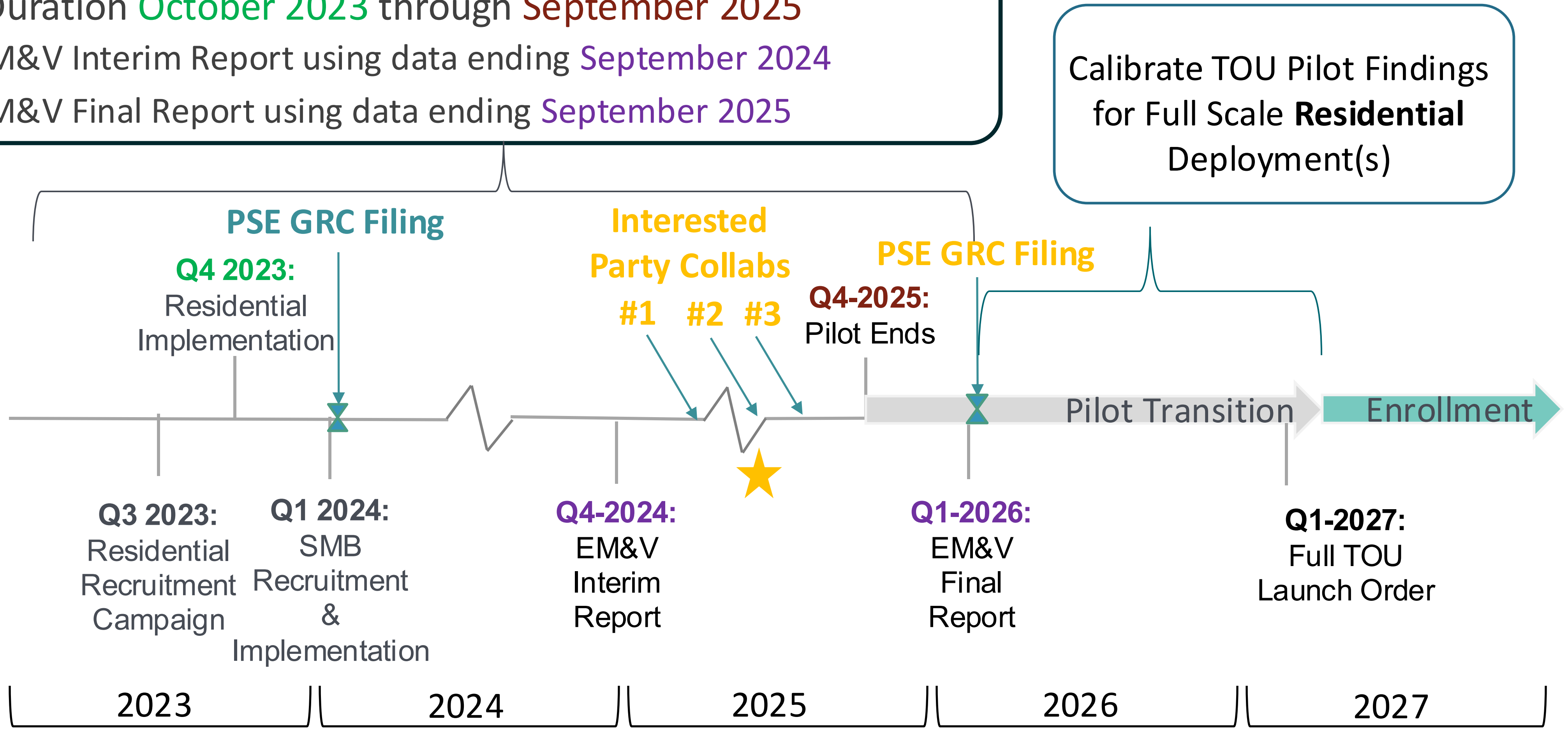
- Most rate schedules produced a fairly even mix of winners and losers (except customers on 327 were mostly winners)
- On average, time-varying rates saved households money
- Bill impacts generally modest, except for customers on 327 (who are mostly EV owners)
- Income Eligible Customers with Bill Protection saved less than those without Bill Protection

Open Q&A

Transition Period Timing

Status Update - TVR Timeline

Pilot Duration October 2023 through September 2025
- EM&V Interim Report using data ending September 2024
- EM&V Final Report using data ending September 2025



For discussion purposes only

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Transition Plan

Proposal

- Close SCH 317
  - Allow enrolled customers to opt-in to either SCH 307 or 327 (or default to 7)

- Revise SCH 307 and 327
  - Modify caps to allow 317 opt-in
  - Revise billing language to support proration for enrollment/un-enrollment
  - Potential meter data and bill presentment updates

- Close SCH 324 & transition customers back to SCH 24

Transition Period

Engagement and Regulatory Timeline

Internal PSE Reviews | Interested Party Engagement | Regulatory Filing | Transition Implementation

7/15
Draft Year 1 Write-up By Cadmus

8/1
Final Year 1 Write-up Shared with Interested Parties

8/15
Interested Parties Collab #3

8/25
Tariff revisions finalized

9/19
File Revised Tariffs

10/23
Tariffs Approved

12/20
Target Implementation Date

Next Steps

- PSE to send Year 1 Write-up around 8/1
- PSE to schedule Collaboration #3 for mid-August to review Evaluation Report