



February Cold Weather Event



SPEED
LIMIT
20



Agenda

Pam Bonrud, *Director Government and Regulatory Affairs*
Introductions

Brad Wenande, *South Division Manager*
Operations Overview

Luke Hansen, *Manager Gas Supply*
Gas Supply Overview

Jeff Decker, *Regulatory Specialist*
Customer Bill Overview

Questions?



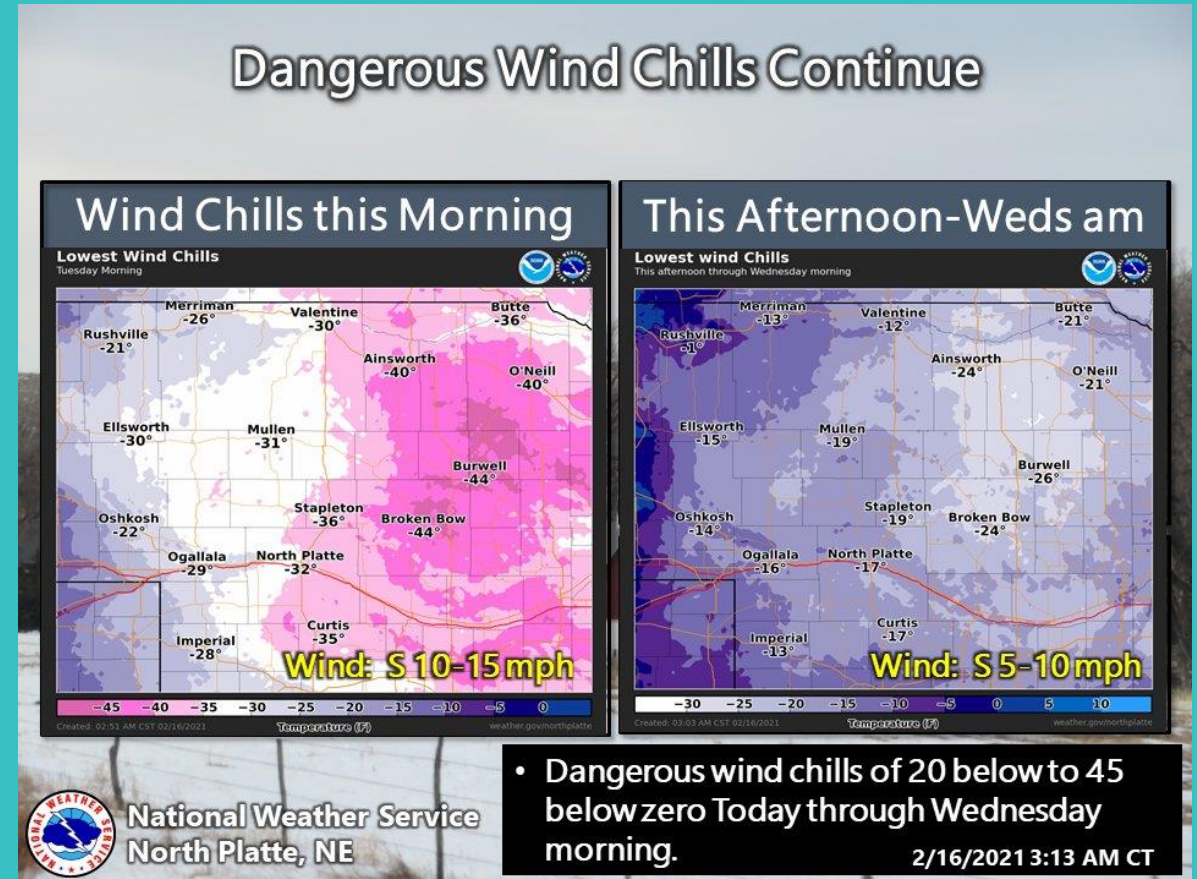
Pam Bonrud, Director Government and Regulatory Affairs



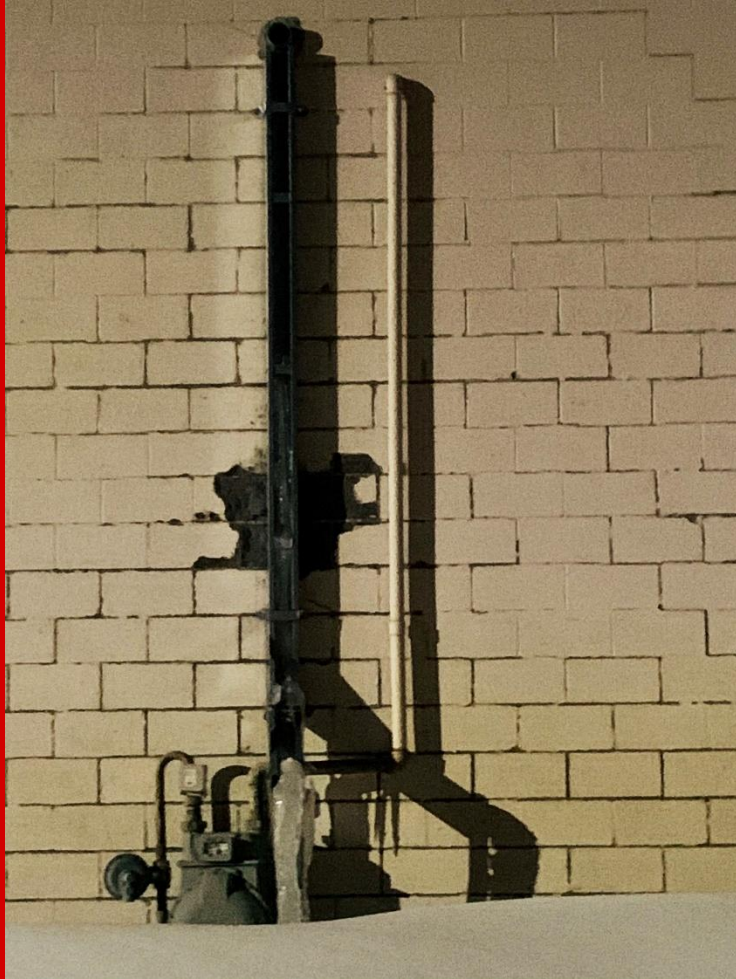
Brad Wenande, South Division Manager

February Cold Weather Event

- Recognized the cold-weather event forecasted for several consecutive days in February.
- Began to study system models to identify operational challenges and identify key response measures to implement.
- Greatest challenge maintaining our system identified in the SW part of Grand Island, including our feed to Alda.
- Pulled in SME's from across different departments to review historical and projected load data, pressure settings, MAOP values and alarm set points.



Response Measures



- Increased regulator outlet pressures by 10% at a handful of regulator stations.
 - Specific to a subsection of the system on the southwest side of Grand Island.
- Monitored system operation and pressures leading up to the event.
- Outreach to customers to voluntarily reduce usage.
- Declared a gas curtailment to further reduce load.
 - To maintain integrity of the system
- Operations management team monitored the system via Scada overnight.
- Deployed craft resources at regulator stations to monitor actual pressures in the field starting at 5 am until the system showed signs of pressure recovery.

Response Measures



This is an example of pressure trending visible to us via Scada. We were using this type of chart extensively throughout the event.

Timeline of Events



Tuesday, Feb. 9 –

- Air temperature in Grand Island as low as -17°
- Alda regulator station inlet pressure dropped to 29 psi (system designed for a 60 psi inlet)
- Did not incur any operating issues

Friday, Feb. 12 –

- Began outreach to interruptible customers to voluntarily reduce load
- Pulled in Regulatory and Gas Supply teams to discuss parameters of declaring a curtailment should we need to pull that trigger
- Response team met to initiate action plan for the weekend

Saturday, Feb. 13 –

- Continued customer outreach to reduce load voluntarily, in particular with high-use customers
- Declared curtailment February 14 – 16

Timeline of Events



Sunday, Feb. 14 thru Tuesday, Feb. 16 –

- Response team continued to meet
- Finalized plans for the upcoming morning peak loads
- Gleaned all information from the previous day to hone models for accuracy

Monday, Feb. 15 –

- Air temperature in Grand Island as low as -20°
- Record flows / demand on system
- Alda regulator station inlet pressure dropped to 29 psi

Tuesday, Feb. 16 –

- Air temperature in Grand Island as low as -18°
- Record flows / demand on system
- Alda regulator station inlet pressure dropped to 30 psi

Additional Context

- We did not experience any operating issues or have any no-gas situations during the event.
- Several customers went off-line or delayed start of shift to allow us to get through the morning peak load constraint. We were in contact with those customers regularly throughout the event.
- The pressure correction work completed in 2020 aided us in this situation. Work planned for year 2 of the pressure correction project planned for completion in 2021 should alleviate this issue going forward.
- We plan to bring on more Scada monitoring points to allow for even greater visibility to the system.

Lessons Learned



- System models accurately depicted operation observed.
- Take a more surgical approach to contacting customers to reduce usage.
- Dealing with a system constraint versus a broader supply issue, we could have focused our customer outreach efforts to the southwest area of town rather than contacting all interruptible, industrial and commercial customers.



Luke Hansen, Manager Gas Supply

Dates of Impact

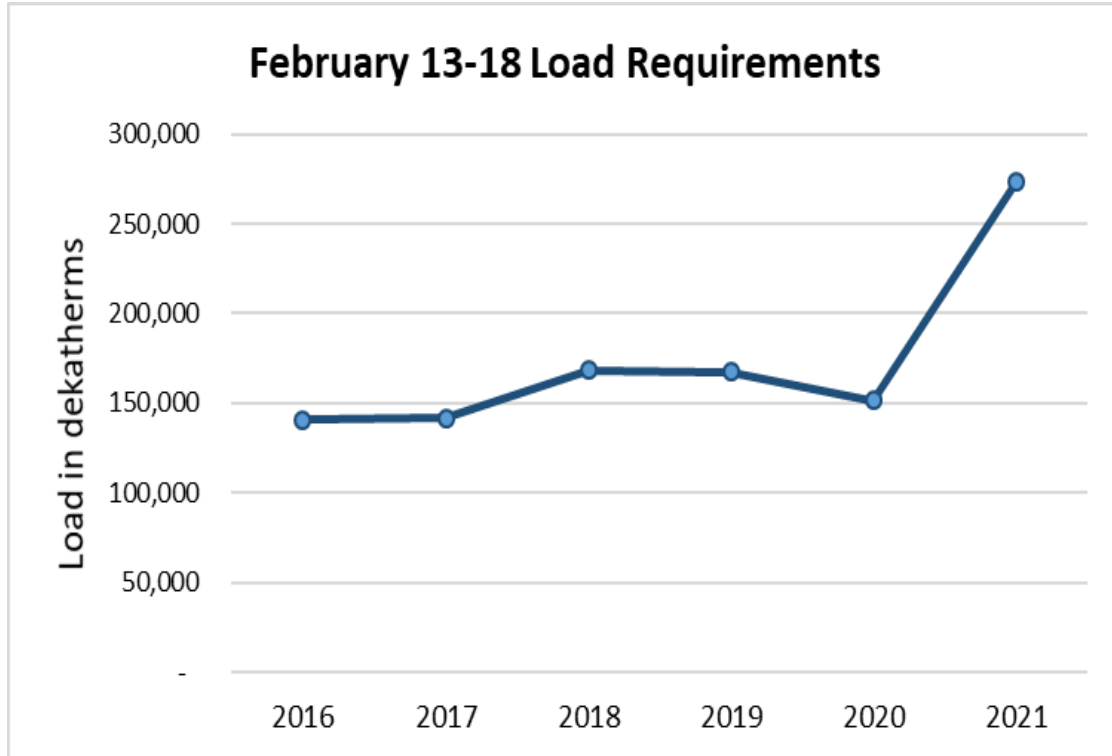
NorthWestern Energy proposes to use the dates of **February 13-18** for a **cost recovery mechanism** for the cold weather event. Purchases made on February 18 were made at the end of the cold weather event and were above normal day prices. The indexes that these purchases were made on settled above \$20 per dekatherm.



How Cold Was It?

• DATE	Actual HDD's	Normal HDD's	% Colder	Actual Temp	Normal Temp
• February 4	36	39	-8%	29	26
• February 8	72	38	90%	-7	27
• February 12	67	37	81%	-2	28
• February 13	67	37	81%	-2	28
• February 14	74	36	106%	-9	29
• February 15	80	36	122%	-15	29
• February 16	77	36	114%	-12	29
• February 17	55	35	57%	10	30
• February 18	49	35	40%	16	30
• February 19	51	35	46%	14	30
• February 20	48	35	37%	17	30
• February 21	31	34	-9%	34	31

Weather Impact on Natural Gas Purchase Volumes



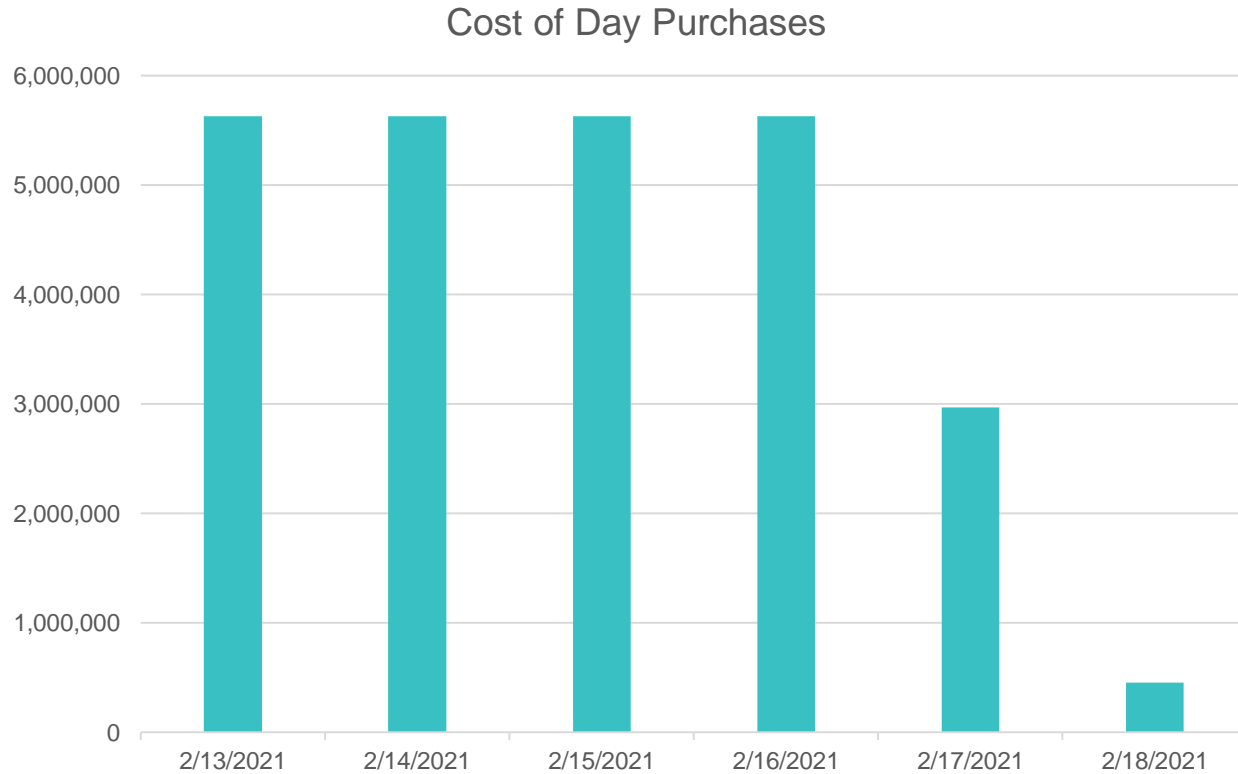
Feb 13 – 18 Baseload Supplies	144,000
Est Feb 13 – 18 Incremental Purchases	149,660

New Peak Day Usage Established

Previous Peak Day Usage	46,000
One day was just below	46,000
Three days were above	47,500
Two days were above	50,000
New Peak was	50,400

February 13-18 presented unprecedented challenges with curtailment notifications, rolling blackouts, and record natural gas prices.

Impact on Natural Gas Purchases



DATE

- February 13
- February 14
- February 15
- February 16
- February 17
- February 18

COST OF DAY PURCHASES

\$5,633,225
\$5,633,225
\$5,633,225
\$5,633,225
\$2,969,407
\$452,293

Total purchases = \$25,954,600



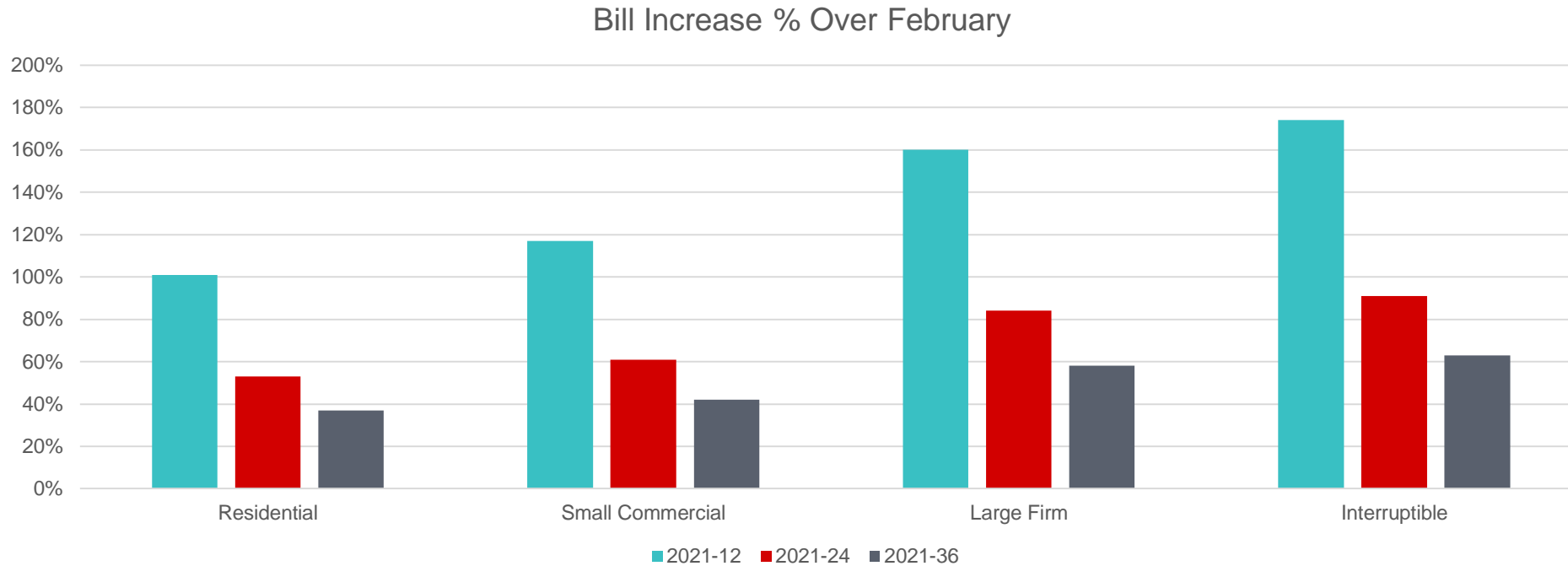
Jeff Decker, Regulatory Specialist

February Average Bill Cost

Customer Class	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2021</u>	<u>2021-12</u>	<u>2021-24</u>	<u>2021-36</u>
• Residential	\$121	\$110	\$96	\$78	\$157	\$119	\$106
• Small Commercial	\$383	\$342	\$325	\$253	\$550	\$409	\$360
• Large Firm	\$2,483	\$3,092	\$2,609	\$1,654	\$4,305	\$3,045	\$2,610
• Interruptible	\$2,203	\$2,104	\$2,663	\$738	\$2,446	\$1,708	\$1,453

- * 2021-12 = 12 month February event gas cost recovery
- * 2021-24 = 24 month recovery
- * 2021-36 = 36 month recovery

Percent of Increase Over February Actual Bill Cost



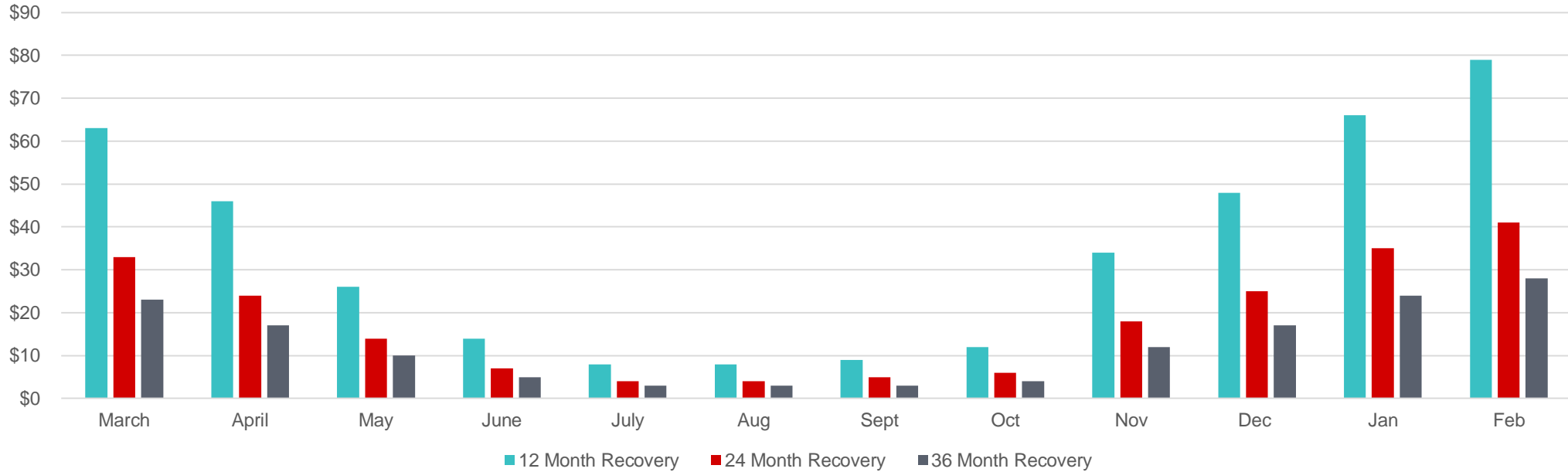
- Bill Increase % Over February 2021

- Residential
- Small Commercial
- Large Firm
- Interruptible

<u>2021-12</u>	<u>2021-24</u>	<u>2021-36</u>
101%	53%	37%
117%	61%	42%
160%	84%	58%
174%	91%	63%

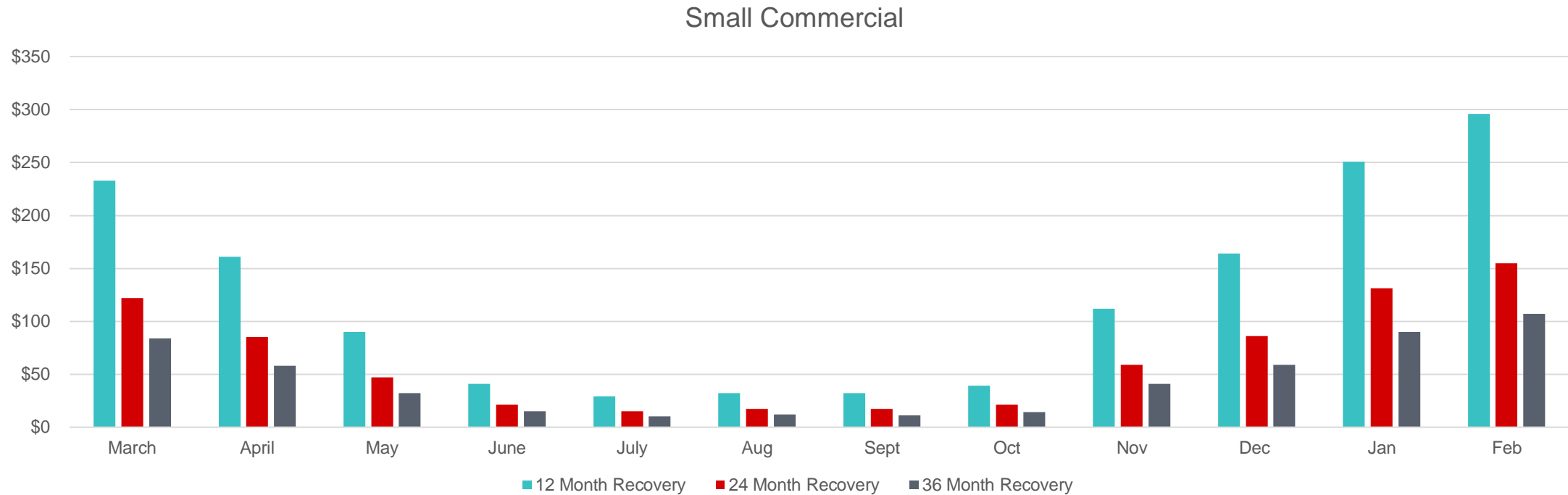
12 Month Bill Increase Residential

Residential



Residential	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Total</u>
• 12 Month Recovery	\$63	\$46	\$26	\$14	\$8	\$8	\$9	\$12	\$34	\$48	\$66	\$79	\$414
• 24 Month Recovery	\$33	\$24	\$14	\$7	\$4	\$4	\$5	\$6	\$18	\$25	\$35	\$41	\$217
• 36 Month Recovery	\$23	\$17	\$10	\$5	\$3	\$3	\$3	\$4	\$12	\$17	\$24	\$28	\$149

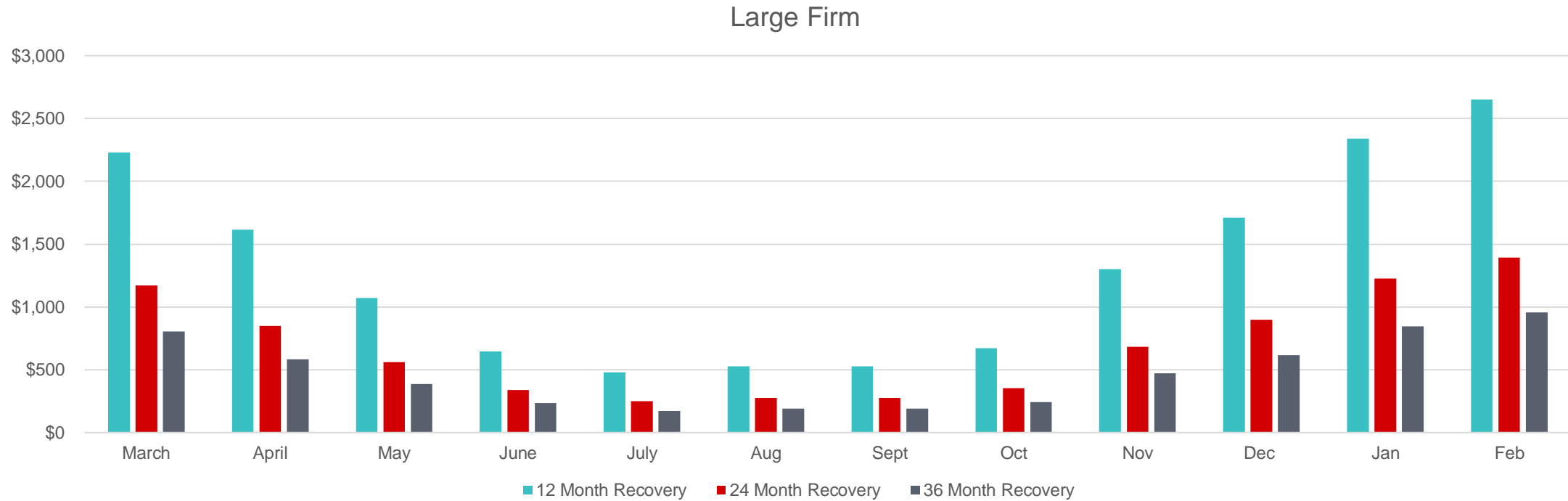
12 Month Bill Increase Small Commercial



- Small Commercial

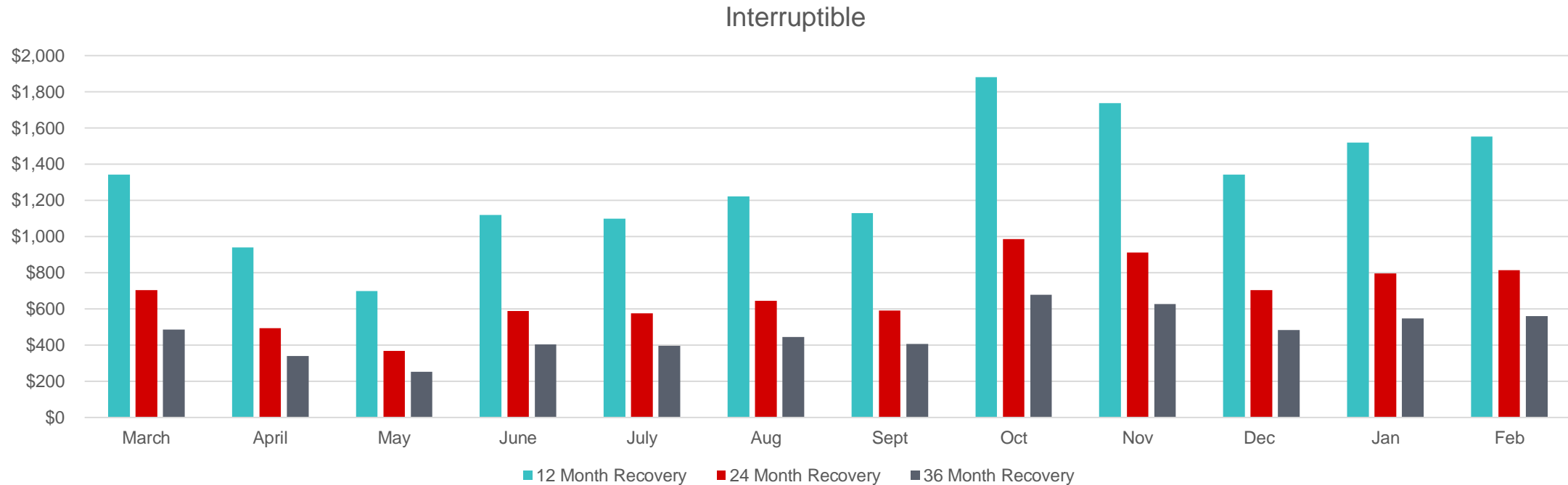
	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Total</u>
• 12 Month Recovery	\$233	\$161	\$90	\$41	\$29	\$32	\$32	\$39	\$112	\$164	\$251	\$296	\$1,480
• 24 Month Recovery	\$122	\$85	\$47	\$21	\$15	\$17	\$17	\$21	\$59	\$86	\$131	\$155	\$776
• 36 Month Recovery	\$84	\$58	\$32	\$15	\$10	\$12	\$11	\$14	\$41	\$59	\$90	\$107	\$534

12 Month Bill Increase Large Firm



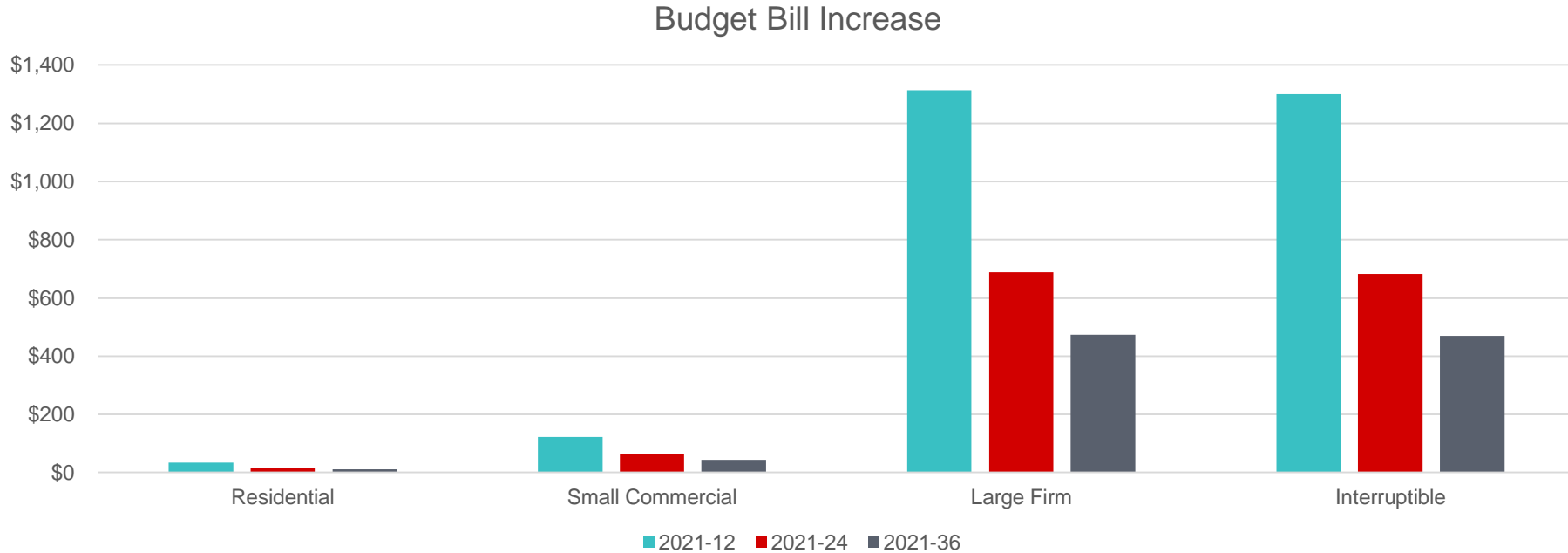
- | Large Firm | <u>Mar</u> | <u>Apr</u> | <u>May</u> | <u>Jun</u> | <u>Jul</u> | <u>Aug</u> | <u>Sep</u> | <u>Oct</u> | <u>Nov</u> | <u>Dec</u> | <u>Jan</u> | <u>Feb</u> | <u>Total</u> |
|---------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| • 12 Month Recovery | \$2,230 | \$1,614 | \$1,070 | \$645 | \$477 | \$525 | \$525 | \$669 | \$1,301 | \$1,710 | \$2,339 | \$2,651 | \$15,757 |
| • 24 Month Recovery | \$1,170 | \$847 | \$561 | \$338 | \$250 | \$275 | \$275 | \$351 | \$683 | \$897 | \$1,227 | \$1,391 | \$8,266 |
| • 36 Month Recovery | \$804 | \$582 | \$386 | \$233 | \$172 | \$189 | \$189 | \$241 | \$469 | \$617 | \$843 | \$956 | \$5,683 |

12 Month Bill Increase Interruptible



- | Interruptible | <u>Mar</u> | <u>Apr</u> | <u>May</u> | <u>Jun</u> | <u>Jul</u> | <u>Aug</u> | <u>Sep</u> | <u>Oct</u> | <u>Nov</u> | <u>Dec</u> | <u>Jan</u> | <u>Feb</u> | <u>Total</u> |
|---------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| • 12 Month Recovery | \$1,344 | \$939 | \$700 | \$1,120 | \$1,100 | \$1,223 | \$1,129 | \$1,881 | \$1,739 | \$1,342 | \$1,519 | \$1,553 | \$15,597 |
| • 24 Month Recovery | \$705 | \$493 | \$367 | \$588 | \$577 | \$645 | \$592 | \$987 | \$912 | \$704 | \$797 | \$815 | \$8,182 |
| • 36 Month Recovery | \$485 | \$339 | \$253 | \$404 | \$397 | \$444 | \$407 | \$678 | \$627 | \$484 | \$548 | \$560 | \$5,625 |

Monthly Estimated Budget Bill Increase



- Budget Bill Increase

	<u>2021-12</u>	<u>2021-24</u>	<u>2021-36</u>
• Residential	\$34	\$18	\$12
• Small Commercial	\$123	\$65	\$44
• Large Firm	\$1,313	\$689	\$474
• Interruptible	\$1,300	\$682	\$469



Questions?

