Application of SAN DIEGO GAS & ELECTRIC COMPANY for authority to update its gas and electric revenue requirement and base rates effective January 1, 2024 (U 902-M)	))))

Application No. 22-05-___

Exhibit No.: (SDG&E-15-WP)

WORKPAPERS TO
PREPARED DIRECT TESTIMONY
OF FERNANDO VALERO
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

May 2022

2024 General Rate Case - APP

INDEX OF WORKPAPERS

Exhibit SDG&E-15-WP - CLEAN ENERGY INNOVATIONS

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Overall Summary For Exhibit No. SDG&E-15-WP

Area: **CLEAN ENERGY INNOVATIONS**

Witness: **Fernando Valero**

	In 2021 $ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
Description	**2021**	**2022**	**2023**	**2024**
Non-Shared Services	3,895	5,199	5,848	9,985
Shared Services	0	0	0	0
Total	**3,895**	**5,199**	**5,848**	**9,985**

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero

Summary of Non-Shared Services Workpapers:

	In 2021 $ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
Description	**2021**	**2022**	**2023**	**2024**
A. Clean Energy Innovations	3,895	5,199	5,848	9,985
Total	**3,895**	**5,199**	**5,848**	**9,985**

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Workpaper: VARIOUS

Summary for Category: A. Clean Energy Innovations

	In 2021$ (000) Incurred Costs			
	Adjusted-Recorded	Adjusted-Forecast		
	2021	2022	2023	2024
Labor	1,969	2,219	2,670	3,732
Non-Labor	1,925	2,979	3,177	6,252
NSE	0	0	0	0
Total	**3,894**	**5,198**	**5,847**	**9,984**
FTE	13.5	15.5	19.2	28.3

Workpapers belonging to this Category:

1DD001.000 Hydrogen Strategy and Implementation

Labor	611	611	905	905
Non-Labor	5	1,005	1,180	105
NSE	0	0	0	0
Total	**616**	**1,616**	**2,085**	**1,010**
FTE	4.0	4.0	6.4	7.0

1DD002.000 Advanced Clean Technology

Labor	1,112	1,237	1,237	1,268
Non-Labor	108	108	108	108
NSE	0	0	0	0
Total	**1,220**	**1,345**	**1,345**	**1,376**
FTE	7.0	8.0	8.0	8.3

1DD003.000 Innovation Technology Development

Labor	0	0	0	875
Non-Labor	0	0	0	4,125
NSE	0	0	0	0
Total	**0**	**0**	**0**	**5,000**
FTE	0.0	0.0	0.0	7.0

1DD004.000 Sustainable Communities

Labor	0	0	0	0
Non-Labor	180	234	257	282
NSE	0	0	0	0
Total	**180**	**234**	**257**	**282**
FTE	0.0	0.0	0.0	0.0

1DD005.000 Distributed Energy Resource Engineering

Labor	246	371	528	684
Non-Labor	1,632	1,632	1,632	1,632
NSE	0	0	0	0
Total	**1,878**	**2,003**	**2,160**	**2,316**
FTE	2.5	3.5	4.8	6.0

Note: Totals may include rounding differences.

Beginning of Workpaper
1DD001.000 - Hydrogen Strategy and Implementation

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD001.000 - Hydrogen Strategy and Implementation

Activity Description:

The Hydrogen Strategy and Implementation department is responsible for understanding, developing, incorporating, and leading clean hydrogen projects into the company's electric, gas, and internal operations as part of SDG&E's sustainability strategy and supporting customer adoption of hydrogen technologies. As this is a newly created department, additional staff are required to support the state's goals of decarbonization and utilizing hydrogen technologies as one of the many solutions. Request for non-labor funding to support additional modeling and surveys performed to improve knowledge base on various aspects of hydrogen technologies and adoption.

Forecast Explanations:

Labor - Base YR Rec

The forecast method is base-year. This is appropriate because it accurately reflects the current state of the activities performed by the Hydrogen Strategy and Implementation team and anticipated activities necessary to execute on hydrogen projects, support regulatory requirements, provide technical support for hydrogen technologies to SDG&E and to its customers, and pursuing external funding (i.e., state or federal).

Non-Labor - Base YR Rec

The forecast method is base-year. This is appropriate because it accurately reflects the current state of the activities performed by the Hydrogen Strategy and Implementation team and anticipated activities necessary to execute on hydrogen projects, support regulatory requirements, provide technical support for hydrogen technologies to SDG&E and to its customers, and pursuing external funding (i.e., state or federal).

NSE - Base YR Rec

Not Applicable

Summary of Results:

	In 2021$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Labor	0	0	0	0	611	612	906	906
Non-Labor	0	0	0	0	5	1,005	1,180	105
NSE	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**617**	**1,617**	**2,086**	**1,011**
FTE	0.0	0.0	0.0	0.0	4.0	4.0	6.4	7.0

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD001.000 - Hydrogen Strategy and Implementation

Summary of Adjustments to Forecast:

In 2021 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2022**	**2023**	**2024**	**2022**	**2023**	**2024**	**2022**	**2023**	**2024**
Labor	Base YR Rec	611	611	611	0	294	294	611	905	905
Non-Labor	Base YR Rec	5	5	5	1,000	1,175	100	1,005	1,180	105
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**617**	**617**	**617**	**1,000**	**1,469**	**394**	**1,617**	**2,086**	**1,011**
FTE	Base YR Rec	4.0	4.0	4.0	0.0	2.4	3.0	4.0	6.4	7.0

Forecast Adjustment Details:

Year	Labor	NLbr	NSE	Total	FTE	Adj Type
2022	0	100	0	100	0.0	1-Sided Adj
Explanation:	Sponsorships and other cost					
2022	0	900	0	900	0.0	1-Sided Adj
Explanation:	H2 Modeling - On-board a technical modeling firm to inform on what will be required for a an improvement plan					
2022 Total	**0**	**1,000**	**0**	**1,000**	**0.0**	
2023	294	0	0	294	2.4	1-Sided Adj
Explanation:	2.4 FTEs at $125K a year. (.9 FTE) Business Development Manager will focus on the development and structuring, (.5 FTE) Project Manager to focus on execution of short and medium-term projects (blending application, Borrego expansion, etc.) (1 FTE) Analyst to support the rest of the team in general activities (administrative work, etc.)					
2023	0	225	0	225	0.0	1-Sided Adj
Explanation:	Hydrogen Perception & Acceptance survey includes 8 months of consultant work activities such as internet based, mail-based and potentially phone-call based survey delivery					
2023	0	300	0	300	0.0	1-Sided Adj
Explanation:	H2 Modeling - Cuyamaca Pre-Feasibility Study - a plan to model the costs and feasibility of conversion to hydrogen fuel of Cuyamaca, a 50 MW blackstart peaker plant located in El Cajon, CA.					
2023	0	550	0	550	0.0	1-Sided Adj
Explanation:	H2 Modeling - Study to evaluate appliance and system upgrades, safety implications, as well as economic and equitable placement on the system in comparison to an "electrify only" approach.					
2023	0	100	0	100	0.0	1-Sided Adj
Explanation:	Sponsorships and other cost					
2023 Total	**294**	**1,175**	**0**	**1,469**	**2.4**	
2024	294	0	0	294	3.0	1-Sided Adj

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD001.000 - Hydrogen Strategy and Implementation

Year	Labor	NLbr	NSE	Total	FTE	Adj_Type
Explanation:	2.4 FTEs at $125K a year. (.9 FTE) Business Development Manager will focus on the development and structuring, (.5 FTE) Project Manager to focus on execution of short and medium-term projects (blending application, Borrego expansion, etc.) (1 FTE) Analyst to support the rest of the team in general activities (administrative work, etc.) 3.0 FTEs at $125K a year. (1 FTE) Business Development Manager will focus on the development and structuring, (1 FTE) Project Manager to focus on execution of short and medium-term projects (blending application, Borrego expansion, etc.) (1 FTE) Analyst to support the rest of the team in general activities (administrative work etc					
2024	0	100	0	100	0.0	1-Sided Adj
Explanation:	Sponsorships and other cost					
2024 Total	**294**	**100**	**0**	**394**	**3.0**	

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD001.000 - Hydrogen Strategy and Implementation

Determination of Adjusted-Recorded (Incurred Costs):

	2017 ($000)	2018 ($000)	2019 ($000)	2020 ($000)	2021 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	197
Non-Labor	0	0	0	0	5
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**203**
FTE	0.0	0.0	0.0	0.0	1.2
Adjustments (Nominal $) **					
Labor	0	0	0	0	334
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**334**
FTE	0.0	0.0	0.0	0.0	2.2
Recorded-Adjusted (Nominal $)					
Labor	0	0	0	0	532
Non-Labor	0	0	0	0	5
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**537**
FTE	0.0	0.0	0.0	0.0	3.4
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	80
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**80**
FTE	0.0	0.0	0.0	0.0	0.6
Escalation to 2021$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021$)					
Labor	0	0	0	0	611
Non-Labor	0	0	0	0	5
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**617**
FTE	0.0	0.0	0.0	0.0	4.0

* After company-wide exclusions of Non-GRC costs
** Refer to "Detail of Adjustments to Recorded" page for line item adjustments
Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD001.000 - Hydrogen Strategy and Implementation

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2017**	**2018**	**2019**	**2020**	**2021**
Labor	0	0	0	0	334
Non-Labor	0	0	0	0	-0.225
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**334**
FTE	0.0	0.0	0.0	0.0	2.2

Detail of Adjustments to Recorded:

Year	Labor	NLbr	NSE	FTE	Adj Type
2017 Total	**0**	**0**	**0**	**0.0**	
2018 Total	**0**	**0**	**0**	**0.0**	
2019 Total	**0**	**0**	**0**	**0.0**	
2020 Total	**0**	**0**	**0**	**0.0**	
2021	0	0	0	0.0	1-Sided Adj
Explanation:	Incremental COVID-related costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2021	334	0	0	2.2	1-Sided Adj
Explanation:	Full Year for 4 FTE that started in Q3. Assumes 5% of time is Capital				
2021 Total	**334**	**0**	**0**	**2.2**	

Note: Totals may include rounding differences.

Beginning of Workpaper
1DD002.000 - Advanced Clean Technology

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD002.000 - Advanced Clean Technology

Activity Description:

The Advanced Clean Technology (ACT) department is responsible for developing and deploying energy storage, microgrids, integration software, and other clean energy technologies. The ACT department supports the development and deployment of energy storage systems and microgrids throughout SDG&E's service territory. The ACT department also supports regulatory activities relating to DER integration, technology innovation, and microgrid deployment. Members of the department actively engage in and contribute to statewide activities on DER and clean energy technology adoption, and also facilitating internal activities on grid modernization related investments. The expenses include labor costs for the department staff and non-labor costs for training and staff development.

Forecast Explanations:

Labor - Base YR Rec

The forecast method is base-year. This is appropriate because it accurately reflects the current state of the activities performed by the Advanced Clean Technology team and anticipated activities necessary to execute on clean energy projects, support regulatory requirements, provide technical support for clean energy technologies to SDG&E and to its customers, and pursuing external funding (i.e., state or federal).

Non-Labor - Base YR Rec

The forecast method is base-year. This is appropriate because it accurately reflects the current state of the activities performed by the Advanced Clean Technology team.

NSE - Base YR Rec

Not Applicable

Summary of Results:

In 2021$ (000) Incurred Costs								
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Labor	346	442	599	1,000	1,112	1,237	1,237	1,268
Non-Labor	131	198	236	391	108	108	108	108
NSE	0	0	0	0	0	0	0	0
Total	**477**	**640**	**835**	**1,391**	**1,221**	**1,345**	**1,345**	**1,376**
FTE	2.1	2.9	3.6	6.1	7.0	8.0	8.0	8.3

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD002.000 - Advanced Clean Technology

Summary of Adjustments to Forecast:

In 2021 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2022**	**2023**	**2024**	**2022**	**2023**	**2024**	**2022**	**2023**	**2024**
Labor	Base YR Rec	1,112	1,112	1,112	125	125	156	1,237	1,237	1,268
Non-Labor	Base YR Rec	108	108	108	0	0	0	108	108	108
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**1,221**	**1,221**	**1,221**	**125**	**125**	**156**	**1,346**	**1,346**	**1,377**
FTE	Base YR Rec	7.0	7.0	7.0	1.0	1.0	1.3	8.0	8.0	8.3

Forecast Adjustment Details:

Year	Labor	NLbr	NSE	Total	FTE	Adj Type
2022	125	0	0	125	1.0	1-Sided Adj
Explanation:	1 FTE at $125K for development of Clean Technology projects and contract support. Includes 2 Engineers at .25 FTE, 1 Project Manager at .25 FTE and 1 Contract Administrator at .25 FTE					
2022 Total	**125**	**0**	**0**	**125**	**1.0**	
2023	125	0	0	125	1.0	1-Sided Adj
Explanation:	1 FTE at $125K for development of Clean Technology projects and contract support. Includes 2 Engineers at .25 FTE, 1 Project Manager at .25 FTE and 1 Contract Administrator at .25 FTE					
2023 Total	**125**	**0**	**0**	**125**	**1.0**	
2024	156	0	0	156	1.3	1-Sided Adj
Explanation:	1.25 FTE at $125K for development of Clean Technology projects and contract support. Includes 2 Engineers at .25 FTE, 1 Project Manager at .25 FTE and 2 Contract Administrator at .25 FTE					
2024 Total	**156**	**0**	**0**	**156**	**1.3**	

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD002.000 - Advanced Clean Technology

Determination of Adjusted-Recorded (Incurred Costs):

	2017 ($000)	2018 ($000)	2019 ($000)	2020 ($000)	2021 ($000)
Recorded (Nominal $)*					
Labor	268	349	381	526	628
Non-Labor	87	150	151	284	80
NSE	0	0	0	0	0
Total	**355**	**499**	**532**	**810**	**707**
FTE	1.7	2.5	2.6	3.7	4.3
Adjustments (Nominal $) **					
Labor	2	5	114	323	339
Non-Labor	28	29	68	77	28
NSE	0	0	0	0	0
Total	**30**	**33**	**181**	**400**	**368**
FTE	0.1	0.1	0.5	1.6	1.7
Recorded-Adjusted (Nominal $)					
Labor	270	354	495	849	967
Non-Labor	115	179	219	361	108
NSE	0	0	0	0	0
Total	**385**	**533**	**714**	**1,210**	**1,075**
FTE	1.8	2.5	3.1	5.3	6.0
Vacation & Sick (Nominal $)					
Labor	40	54	71	120	145
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**40**	**54**	**71**	**120**	**145**
FTE	0.3	0.4	0.5	0.8	1.0
Escalation to 2021$					
Labor	36	35	33	31	0
Non-Labor	17	19	18	30	0
NSE	0	0	0	0	0
Total	**53**	**54**	**50**	**61**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021$)					
Labor	346	442	599	1,000	1,112
Non-Labor	131	198	236	391	108
NSE	0	0	0	0	0
Total	**477**	**640**	**835**	**1,391**	**1,221**
FTE	2.1	2.9	3.6	6.1	7.0

* After company-wide exclusions of Non-GRC costs
** Refer to "Detail of Adjustments to Recorded" page for line item adjustments
Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD002.000 - Advanced Clean Technology

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs						
	Years	**2017**	**2018**	**2019**	**2020**	**2021**
Labor		2	5	114	323	339
Non-Labor		28	29	68	77	28
NSE		0	0	0	0	0
	Total	**30**	**33**	**181**	**400**	**368**
FTE		0.1	0.1	0.5	1.6	1.7

Detail of Adjustments to Recorded:

Year	Labor	NLbr	NSE	FTE	Adj Type
2017	2	28	0	0.1	CCTR Transf From 2100-3651.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2017 Total	**2**	**28**	**0**	**0.1**	
2018	5	24	0	0.1	CCTR Transf From 2100-3651.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2018	0	0	0	0.0	CCTR Transf From 2100-3984.000
Explanation:	Transfer cost from CC 2100-3894 to CC 2100-3893 to reflect current organization structure				
2018	0	5	0	0.0	CCTR Transf From 2200-2229.000
Explanation:	Transfer non-labor expense associated with an industry subscription from 2200-2229 in work group 2RD000.000 Business Development to cost center 2100-3893 in work group 1DD002.000 Advance Technology Integration in order to align historical costs with workgroup in which the activity will be forecasted.				
2018 Total	**5**	**29**	**0**	**0.1**	
2019	-2	37	0	-0.1	CCTR Transf From 2100-3651.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2019	116	30	0	0.6	CCTR Transf From 2100-3984.000
Explanation:	Transfer cost from CC 2100-3894 to CC 2100-3893 to reflect current organization structure				
2019 Total	**114**	**68**	**0**	**0.5**	
2020	0	-4	0	0.0	1-Sided Adj
Explanation:	Incremental COVID-related costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2020	19	26	0	0.1	CCTR Transf From 2100-3651.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD002.000 - Advanced Clean Technology

Year	Labor	NLbr	NSE	FTE	Adj Type
2020	304	55	0	1.5	CCTR Transf From 2100-3984.000
Explanation:	Transfer cost from CC 2100-3894 to CC 2100-3893 to reflect current organization structure				
2020 Total	**323**	**77**	**0**	**1.6**	
2021	0	-4	0	0.0	1-Sided Adj
Explanation:	Incremental COVID-related costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2021	41	24	0	0.3	CCTR Transf From 2100-3651.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2021	299	9	0	1.4	CCTR Transf From 2100-3984.000
Explanation:	Transfer cost from CC 2100-3894 to CC 2100-3893 to reflect current organization structure				
2021 Total	**339**	**28**	**0**	**1.7**	

Note: Totals may include rounding differences.

Beginning of Workpaper
1DD003.000 - Innovation Technology Development

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD003.000 - Innovation Technology Development

Activity Description:

The Innovation Technology Development will focus on research and development of new technologies to support the modernization of the system while also reaching various decarbonization goals. The costs represent hiring of three additional FTEs to oversee, administer and manage the activities as well as costs to perform applied research, providing testing grounds for not yet commercial technology, support partnership opportunities with other entities, and provide technical assistance to vendors and institutions receiving California Energy Commission (CEC) grants.
Categories:
1. Systems Advancements
2. Clean Energy
3. As part of SDG&E's efforts to support its customers through an electrification transformation process , SDG&E has identified research areas under this program which will support that goal, including bi-directional vehicle-to-grid, emerging beachhead sectors, and technology demonstrations like wireless power transfer and dynamic in-motion charging.
4. External Engagement
5. Program Management

Forecast Explanations:

Labor - Zero-Based

The forecast method is zero-based. The forecast is based on cost estimates that were developed based on FTE salaries and the estimated programmatic scope of work.

Non-Labor - Zero-Based

The forecast method is zero-based. The forecast is based on cost estimates that were developed based on FTE salaries and the estimated programmatic scope of work.

NSE - Zero-Based

Not Applicable

Summary of Results:

	In 2021$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Labor	0	0	0	0	0	0	0	875
Non-Labor	0	0	0	0	0	0	0	4,125
NSE	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,000**
FTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD003.000 - Innovation Technology Development

Summary of Adjustments to Forecast:

In 2021 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2022**	**2023**	**2024**	**2022**	**2023**	**2024**	**2022**	**2023**	**2024**
Labor	Zero-Based	0	0	0	0	0	875	0	0	875
Non-Labor	Zero-Based	0	0	0	0	0	4,125	0	0	4,125
NSE	Zero-Based	0	0	0	0	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**	**5,000**	**0**	**0**	**5,000**
FTE	Zero-Based	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	7.0

Forecast Adjustment Details:

Year	Labor	NLbr	NSE	Total	FTE	Adj Type
2022 Total	**0**	**0**	**0**	**0**	**0.0**	
2023 Total	**0**	**0**	**0**	**0**	**0.0**	
2024	875	4,125	0	5,000	7.0	1-Sided Adj
Explanation:	R&D program with support of 7 FTEs @ 125K by pulling suport from other departments. Non-labor labor will be used for consulting. software, equipment, etc.					
2024 Total	**875**	**4,125**	**0**	**5,000**	**7.0**	

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD003.000 - Innovation Technology Development

Determination of Adjusted-Recorded (Incurred Costs):

	2017 ($000)	2018 ($000)	2019 ($000)	2020 ($000)	2021 ($000)
Recorded (Nominal $)*					
Labor	2	5	-2	19	41
Non-Labor	28	24	37	27	24
NSE	0	0	0	0	0
Total	**30**	**28**	**36**	**46**	**65**
FTE	0.0	0.0	0.0	0.1	0.3
Adjustments (Nominal $) **					
Labor	-2	-5	2	-19	-41
Non-Labor	-28	-24	-37	-27	-24
NSE	0	0	0	0	0
Total	**-30**	**-28**	**-36**	**-46**	**-65**
FTE	-0.1	-0.1	0.1	-0.1	-0.3
Recorded-Adjusted (Nominal $)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	-0.1	-0.1	0.1	0.0	0.0
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021$					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021$)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	-0.1	-0.1	0.1	0.0	0.0

* After company-wide exclusions of Non-GRC costs
** Refer to "Detail of Adjustments to Recorded" page for line item adjustments
Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD003.000 - Innovation Technology Development

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2017**	**2018**	**2019**	**2020**	**2021**
Labor	-2	-5	2	-19	-41
Non-Labor	-28	-24	-37	-27	-24
NSE	0	0	0	0	0
Total	**-30**	**-28**	**-36**	**-46**	**-65**
FTE	-0.1	-0.1	0.1	-0.1	-0.3

Detail of Adjustments to Recorded:

Year	Labor	NLbr	NSE	FTE	Adj Type
2017	-2	-28	0	-0.1	CCTR Transf To 2100-3893.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2017 Total	**-2**	**-28**	**0**	**-0.1**	
2018	-5	-24	0	-0.1	CCTR Transf To 2100-3893.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2018 Total	**-5**	**-24**	**0**	**-0.1**	
2019	2	-37	0	0.1	CCTR Transf To 2100-3893.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2019 Total	**2**	**-37**	**0**	**0.1**	
2020	0	-1	0	0.0	1-Sided Adj
Explanation:	Incremental COVID-related costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2020	-19	-26	0	-0.1	CCTR Transf To 2100-3893.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2020 Total	**-19**	**-27**	**0**	**-0.1**	
2021	0	0	0	0.0	1-Sided Adj
Explanation:	Incremental COVID-related costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2021	-41	-24	0	-0.3	CCTR Transf To 2100-3893.000
Explanation:	Transfer cost from CC 2100-3651 to CC 2100-3893 to reflect current organization structure				
2021 Total	**-41**	**-24**	**0**	**-0.3**	

Note: Totals may include rounding differences.

Supplemental Workpapers for Workpaper 1DD003.000

TY2024 GRC FORECAST - DETAILS

Category	Innovation Technology Development
Workpaper	1DD003.000

					2022			2023			2024				
Line Item	**Category/Initiative**	**Unit Description**	**Labor/Non-Labor/ NSE**	**RAMP/Non-RA**	**Unit Metric (**	**# of units**	**Cost per unit***	**Total cost**	**# of units**	**Cost per unit***	**Total cost**	**# of units**	**Cost per unit***	**Total cost**	**Total Cost**
1	External Engagement	Consortia memberships - EPRI	Non-labor	Non-RAMP	subscriptions			$ -			$ -	1	$ 150,000	$ 150,000	*$ 150,000*
2	External Engagement	Consortia memberships - Other	Non-labor	Non-RAMP	subscriptions			$ -			$ -	3	$ 10,000	$ 30,000	*$ 30,000*
3	System Advancements	Electric System Equipment	Non-labor	Non-RAMP	piece of distribution equipment			$ -			$ -	2	$ 400,000	$ 800,000	*$ 800,000*
4	System Advancements	Software	Non-labor	Non-RAMP	software tool			$ -			$ -	1	$ 200,000	$ 200,000	*$ 200,000*
5	System Advancements	Engineering Consulting	Non-labor	Non-RAMP	hours			$ -			$ -	2,000	$ 200	$ 400,000	*$ 400,000*
6	External Engagement	Stakeholder workshops, conferences, etc.	Non-labor	Non-RAMP	N/A			$ -			$ -	1	$ 245,000	$ 245,000	*$ 245,000*
7	Program Management & Admin	Innov Tech Dev Staff	Labor	Non-RAMP	hours			$ -			$ -	2,080	$ 60.00	$ 124,800	*$ 124,800*
8	Program Management & Admin	Innov Tech Dev Staff	Labor	Non-RAMP	hours			$ -			$ -	2,080	$ 60.00	$ 124,800	*$ 124,800*
9	Program Management & Admin	Innov Tech Dev Staff	Labor	Non-RAMP	hours			$ -			$ -	2,080	$ 60.00	$ 124,800	*$ 124,800*
10	Program Management & Admin	Business Unit Project Support	Labor	Non-RAMP	hours			$ -			$ -	2,987	$ 66.75	$ 199,350	*$ 199,350*
11	Clean Energy	Carbon Sequestration Technology	Non-labor	Non-RAMP	study			$ -			$ -	1	$ 1,300,000	$ 1,300,000	*$ 1,300,000*
12	Grant Program Support	Host Utility for grant support piloting of virtual air gap software	Labor	Non-RAMP	hours			$ -			$ -	4,513	$ 66.75	$ 301,250	*$ 301,250*
14	Customer End-Use	Electrification Transformation - Materials & Construction	Non-labor	Non-RAMP	contracts			$ -			$ -	3	$ 150,000	$ 450,000	*$ 450,000*
15	Customer End-Use	Electrification Transformation - Project Engineering, Design, Eval	Non-labor	Non-RAMP	hours			$ -			$ -	1,500	$ 200	$ 300,000	*$ 300,000*
16	Customer End-Use	Electrification Transformation - Licensing	Non-labor	Non-RAMP	software			$ -			$ -	1	$ 150,000	$ 150,000	*$ 150,000*
17	Customer End-Use	Electrification Transformation - Maintenance	Non-labor	Non-RAMP	contracts			$ -			$ -	2	$ 50,000	$ 100,000	*$ 100,000*

Summary									
	Labor			$ -			$ -		$ 875,000	$ 875,000
	Non-Labor			$ -			$ -		$ 4,125,000	$ 4,125,000
	NSE			$ -			$ -		$ -	$ -
Total Workpaper Forecast				**$ -**			**$ -**		**$ 5,000,000**	**$ 5,000,000**

Beginning of Workpaper
1DD004.000 - Sustainable Communities

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub 1. Clean Energy Innovations
Workpaper: 1DD004.000 - Sustainable Communities

Activity Description:

The Sustainable Community Program (SCP) has been open since 2004 as authorized by D.04-12-015. While the program now is closed to enrollment, lease payments and operations and maintenance expenses associated with maintaining the assets are required as part of SDG&E's obligations under the leasing contractual agreements with the community members.

Forecast Explanations:

Labor - Base YR Rec

Not Applicable

Non-Labor - Base YR Rec

The forecast method is base-year. The forecast is based on the number of lease payments anticipated to be made annually, as well using cost estimates for project operations and maintenance activities to be performed during the year.

NSE - Base YR Rec

Not Applicable

Summary of Results:

	In 2021$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Labor	0	0	0	0	0	0	0	0
Non-Labor	411	478	619	212	180	234	257	282
NSE	0	0	0	0	0	0	0	0
Total	**411**	**478**	**619**	**212**	**180**	**234**	**257**	**282**
FTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD004.000 - Sustainable Communities

Summary of Adjustments to Forecast:

In 2021 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2022**	**2023**	**2024**	**2022**	**2023**	**2024**	**2022**	**2023**	**2024**
Labor	Base YR Rec	0	0	0	0	0	0	0	0	0
Non-Labor	Base YR Rec	180	180	180	54	77	102	234	257	282
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**180**	**180**	**180**	**54**	**77**	**102**	**234**	**257**	**282**
FTE	Base YR Rec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Forecast Adjustment Details:

Year	Labor	NLbr	NSE	Total	FTE	Adj Type
2022	0	50	0	50	0.0	1-Sided Adj
Explanation:	Service Maintenance Agreement for Fuel Cell Equipment that was placed into service on December 2021.					
2022	0	4	0	4	0.0	1-Sided Adj
Explanation:	Lease renewal increases to be negotiated with customers as incentive to renew with SDG&E for another term					
2022 Total	**0**	**54**	**0**	**54**	**0.0**	
2023	0	50	0	50	0.0	1-Sided Adj
Explanation:	Service Maintenance Agreement for Fuel Cell Equipment that was placed into service on December 2021.					
2023	0	4	0	4	0.0	1-Sided Adj
Explanation:	Lease renewal increases to be negotiated with customers as incentive to renew with SDG&E for another term					
2023	0	23	0	23	0.0	1-Sided Adj
Explanation:	To cover unforeseen repair and maintenance expenses (inverter failure, etc)					
2023 Total	**0**	**77**	**0**	**77**	**0.0**	
2024	0	50	0	50	0.0	1-Sided Adj
Explanation:	Service Maintenance Agreement for Fuel Cell Equipment that was placed into service on December 2021.					
2024	0	4	0	4	0.0	1-Sided Adj
Explanation:	Lease renewal increases to be negotiated with customers as incentive to renew with SDG&E for another term					
2024	0	25	0	25	0.0	1-Sided Adj
Explanation:	To cover unforeseen repair and maintenance expenses (inverter failure, etc) in 2024					
2024	0	23	0	23	0.0	1-Sided Adj
Explanation:	To cover unforeseen repair and maintenance expenses (inverter failure, etc) from 2023					

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD004.000 - Sustainable Communities

Year	Labor	NLbr	NSE	Total	FTE	Adj_Type
2024 Total	**0**	**102**	**0**	**102**	**0.0**	

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD004.000 - Sustainable Communities

Determination of Adjusted-Recorded (Incurred Costs):

	2017 ($000)	2018 ($000)	2019 ($000)	2020 ($000)	2021 ($000)
Recorded (Nominal $)*					
Labor	0	0	0	0	0
Non-Labor	359	432	573	196	962
NSE	0	0	0	0	0
Total	**359**	**432**	**573**	**196**	**962**
FTE	0.0	0.0	0.0	0.0	0.0
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	-782
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**-782**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Nominal $)					
Labor	0	0	0	0	0
Non-Labor	359	432	573	196	180
NSE	0	0	0	0	0
Total	**359**	**432**	**573**	**196**	**180**
FTE	0.0	0.0	0.0	0.0	0.0
Vacation & Sick (Nominal $)					
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Escalation to 2021$					
Labor	0	0	0	0	0
Non-Labor	52	46	46	16	0
NSE	0	0	0	0	0
Total	**52**	**46**	**46**	**16**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021$)					
Labor	0	0	0	0	0
Non-Labor	411	478	619	212	180
NSE	0	0	0	0	0
Total	**411**	**478**	**619**	**212**	**180**
FTE	0.0	0.0	0.0	0.0	0.0

* After company-wide exclusions of Non-GRC costs
** Refer to "Detail of Adjustments to Recorded" page for line item adjustments
Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD004.000 - Sustainable Communities

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	**2017**	**2018**	**2019**	**2020**	**2021**
Labor	0	0	0	0	0
Non-Labor	0	0	0	0	-782
NSE	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**-782**
FTE	0.0	0.0	0.0	0.0	0.0

Detail of Adjustments to Recorded:

Year	Labor	NLbr	NSE	FTE	Adj Type
2017 Total	**0**	**0**	**0**	**0.0**	
2018 Total	**0**	**0**	**0**	**0.0**	
2019 Total	**0**	**0**	**0**	**0.0**	
2020 Total	**0**	**0**	**0**	**0.0**	
2021	0	-782	0	0.0	1-Sided Adj
Explanation:	Removes incorrect charging for capital charging				
2021 Total	**0**	**-782**	**0**	**0.0**	

Note: Totals may include rounding differences.

Beginning of Workpaper
1DD005.000 - Distributed Energy Resource Engineering

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub 1. Clean Energy Innovations
Workpaper: 1DD005.000 - Distributed Energy Resource Engineering

Activity Description:

The DER Engineering team consists of engineers, project managers and project specialists evaluating and deploying technology to lessen the impact of DER growth an integration on electric reliability, operational flexibility, and public safey. The dynamic impact of DERs, such as renewable resources and energy storage, on our system can be significant. The DER Engineering team uses advancing technology (such as inverters, advanced controls/communications, and other intelligent electronic devices) to bring more DER onto the system while lessening negative impact. The addition of DER to our system adds value by contributing to capacity deferrals, voltage support, load support, and islanding capability. The growth in the team is related to additional capital project support, such as Advanced Energy Storage, Hydrogen energy storage, Mobile Battery Energy Storage program, and maintenance of other smaller DER assets throughout the SDG&E service territory.

Forecast Explanations:

Labor - Base YR Rec

The forecast method is base-year. The forecast is based on cost estimates that were developed based on FTE salaries for the additional engineering staff.

Non-Labor - Base YR Rec

For the forecast method is base-year. The baes-year reflects the current needs of the DER Engineering team.

NSE - Base YR Rec

Not Applicable

Summary of Results:

	In 2021$ (000) Incurred Costs							
	Adjusted-Recorded					Adjusted-Forecast		
Years	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Labor	34	44	197	136	246	371	528	684
Non-Labor	731	240	777	929	1,632	1,632	1,632	1,632
NSE	0	0	0	0	0	0	0	0
Total	**765**	**284**	**974**	**1,065**	**1,878**	**2,003**	**2,160**	**2,316**
FTE	0.3	0.3	2.0	1.1	2.5	3.5	4.8	6.0

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD005.000 - Distributed Energy Resource Engineering

Summary of Adjustments to Forecast:

In 2021 $(000) Incurred Costs										
Forecast Method		**Base Forecast**			**Forecast Adjustments**			**Adjusted-Forecast**		
Years		**2022**	**2023**	**2024**	**2022**	**2023**	**2024**	**2022**	**2023**	**2024**
Labor	Base YR Rec	246	246	246	125	282	438	371	528	684
Non-Labor	Base YR Rec	1,632	1,632	1,632	0	0	0	1,632	1,632	1,632
NSE	Base YR Rec	0	0	0	0	0	0	0	0	0
Total		**1,878**	**1,878**	**1,878**	**125**	**282**	**438**	**2,003**	**2,160**	**2,316**
FTE	Base YR Rec	2.5	2.5	2.5	1.0	2.3	3.5	3.5	4.8	6.0

Forecast Adjustment Details:

Year	Labor	NLbr	NSE	Total	FTE	Adj Type
2022	125	0	0	125	1.0	1-Sided Adj
Explanation:	1 FTE at $125K/Y Engineer will be responsible for maintenance and operations of the field microgrid assets, and operations and training will involve technical support and training for Distribution Control Center and Palomar Energy operators..					
2022 Total	**125**	**0**	**0**	**125**	**1.0**	
2023	125	0	0	125	1.0	1-Sided Adj
Explanation:	1 Engineer FTE at $125K which focuses on testing of new technologies, performing microgrid islanding studies, integration of microgrids into SDG&E's local area distribution controller (LADC) as SDG&E's microgrid controller; and other engineering studies related to integration of DERs. These resources are needed to also support the increase in energy storage and clean technology capital projects.					
2023	125	0	0	125	1.0	1-Sided Adj
Explanation:	1 FTE at $125K/Y Engineer will be responsible for maintenance and operations of the field microgrid assets, and operations and training will involve technical support and training for Distribution Control Center and Palomar Energy operators.					
2023	32	0	0	32	0.3	1-Sided Adj
Explanation:	.25 FTE for 1 Engineer at $125K for non-capital cost associated with person supporting capital projects such as training, career development, etc.					
2023 Total	**282**	**0**	**0**	**282**	**2.3**	
2024	63	0	0	63	1.0	1-Sided Adj
Explanation:	.50 FTE for 2 Engineer at $125K for non-capital cost associated with person supporting capital projects such as training, career development, etc.					
2024	250	0	0	250	1.5	1-Sided Adj
Explanation:	2 Engineer FTE at $125K which focuses on testing of new technologies, performing microgrid islanding studies, integration of microgrids into SDG&E's local area distribution controller (LADC) as SDG&E's microgrid controller; and other engineering studies related to integration of DERs. These resources are needed to also support the increase in energy storage and clean technology capital projects.					

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD005.000 - Distributed Energy Resource Engineering

Year	Labor	NLbr	NSE	Total	FTE	Adj_Type
2024	125	0	0	125	1.0	1-Sided Adj
Explanation:	1 FTE at $125K/Y Engineer will be responsible for maintenance and operations of the field microgrid assets, and operations and training will involve technical support and training for Distribution Control Center and Palomar Energy operators.					
2024 Total	**438**	**0**	**0**	**438**	**3.5**	

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD005.000 - Distributed Energy Resource Engineering

Determination of Adjusted-Recorded (Incurred Costs):

	2017 ($000)	2018 ($000)	2019 ($000)	2020 ($000)	2021 ($000)
Recorded (Nominal $)*					
Labor	26	35	163	115	214
Non-Labor	640	216	719	2,757	1,749
NSE	0	0	0	0	0
Total	**666**	**251**	**882**	**2,872**	**1,963**
FTE	0.3	0.3	1.7	1.0	2.1
Adjustments (Nominal $) **					
Labor	0	0	0	0	0
Non-Labor	-1	1	0	-1,898	-117
NSE	0	0	0	0	0
Total	**-1**	**1**	**0**	**-1,898**	**-117**
FTE	0.0	0.0	0.0	-0.1	0.0
Recorded-Adjusted (Nominal $)					
Labor	26	35	163	115	214
Non-Labor	639	217	719	859	1,632
NSE	0	0	0	0	0
Total	**665**	**252**	**882**	**974**	**1,846**
FTE	0.3	0.3	1.7	0.9	2.1
Vacation & Sick (Nominal $)					
Labor	4	5	23	16	32
Non-Labor	0	0	0	0	0
NSE	0	0	0	0	0
Total	**4**	**5**	**23**	**16**	**32**
FTE	0.0	0.0	0.3	0.2	0.4
Escalation to 2021$					
Labor	3	4	11	4	0
Non-Labor	92	23	57	70	0
NSE	0	0	0	0	0
Total	**96**	**27**	**68**	**74**	**0**
FTE	0.0	0.0	0.0	0.0	0.0
Recorded-Adjusted (Constant 2021$)					
Labor	34	44	197	136	246
Non-Labor	731	240	777	929	1,632
NSE	0	0	0	0	0
Total	**765**	**284**	**974**	**1,065**	**1,878**
FTE	0.3	0.3	2.0	1.1	2.5

* After company-wide exclusions of Non-GRC costs
** Refer to "Detail of Adjustments to Recorded" page for line item adjustments
Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero
Category: A. Clean Energy Innovations
Category-Sub: 1. Clean Energy Innovations
Workpaper: 1DD005.000 - Distributed Energy Resource Engineering

Summary of Adjustments to Recorded:

In Nominal $ (000) Incurred Costs					
Years	2017	2018	2019	2020	2021
Labor	0	0	0	-0.084	0
Non-Labor	-0.787	0.787	0	-1,898	-117
NSE	0	0	0	0	0
Total	**-0.787**	**0.787**	**0**	**-1,898**	**-117**
FTE	0.0	0.0	0.0	-0.1	0.0

Detail of Adjustments to Recorded:

Year	Labor	NLbr	NSE	FTE	Adj Type
2017	0	-1	0	0.0	1-Sided Adj
Explanation:	Incremental costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2017 Total	**0**	**-1**	**0**	**0.0**	
2018	0	1	0	0.0	1-Sided Adj
Explanation:	Incremental costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2018 Total	**0**	**1**	**0**	**0.0**	
2019 Total	**0**	**0**	**0**	**0.0**	
2020	0	-1,657	0	-0.1	1-Sided Adj
Explanation:	Incremental COVID-related costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2020	0	-3	0	0.0	1-Sided Adj
Explanation:	Incremental costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2020	0	-238	0	0.0	1-Sided Adj
Explanation:	Remove Special Billables				
2020 Total	**0**	**-1,898**	**0**	**-0.1**	
2021	0	-117	0	0.0	1-Sided Adj
Explanation:	Incremental COVID-related costs that are anticipated to be requested for recovery through a non-GRC Catastrophic Event Memorandum Account (CEMA).				
2021 Total	**0**	**-117**	**0**	**0.0**	

Note: Totals may include rounding differences.

Area: CLEAN ENERGY INNOVATIONS
Witness: Fernando Valero

Appendix A: List of Non-Shared Cost Centers

Cost Center	Sub	Description
2100-3438	000	TECHNOLOGY DEVELOPMENT MANAGER
2100-3651	000	TECH INNOV & DEVELOP
2100-3704	000	SUSTAINABLE COMMUNITIES
2100-3877	000	DISTRIBUTION ENERGY RESOURCES
2100-3893	000	ADVANCE TECHNOLOGY INTEGRATION
2100-3973	000	INTEGRATED TEST FACILITY
2100-4065	000	ADVANCE TECHNOLOGY INTEGRATION
2100-4139	000	Hydrogen Strategy and Integration