



Stacy A. Mitchell, Esq.
Senior Director, Regulatory Affairs

November 1, 2017

Electronic Filing & Overnight Mail

Irene Kim Asbury, Secretary
NJ Board of Public Utilities
44 South Clinton Avenue, 3rd Floor
P. O. Box 350
Trenton, NJ 08625-0350

**Re: In the Matter of the Petition of South Jersey Gas Company to Continue its Storm
Hardening and Reliability Program (“SHARP II”) and Associated Recovery
Mechanism
BPU Docket No. _____**

Dear Secretary Asbury:

Enclosed, please find an original and two (2) copies of South Jersey Gas Company’s
Petition, Case Summary and Testimony in the referenced matter, which have been filed
electronically today through the Board’s e-filing program.

If you have any questions, please feel free to contact me directly.

Respectfully,



Stacy A. Mitchell

SAM:lvk
Enclosure

cc: Alex Moreau, Esq. (Division of Law - 2 Copies)
Felicia Thomas-Friel, Esq. (Rate Counsel- 5 Copies)

**STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES**

IN THE MATTER OF THE PETITION OF :
SOUTH JERSEY GAS COMPANY TO :
CONTINUE ITS STORM HARDENING AND : **BPU DOCKET NO. _____**
RELIABILITY PROGRAM (“SHARP II”) :
AND ASSOCIATED RECOVERY :
MECHANISM :

CASE SUMMARY, PETITION AND TESTIMONY

November 1, 2017

**STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES**

IN THE MATTER OF THE PETITION OF : **CASE SUMMARY**
SOUTH JERSEY GAS COMPANY TO :
CONTINUE ITS STORM HARDENING AND :
RELIABILITY PROGRAM (“SHARP II”) : **BPU DOCKET NO. _____**
AND ASSOCIATED RECOVERY :
MECHANISM :

South Jersey Gas Company (“South Jersey”, “Petitioner”, or the “Company”), files this Petition for approval to continue its previously approved Storm Hardening and Reliability Program (“SHARP”) and associated rate recovery mechanism pursuant to N.J.S.A. 48:2-21, 48:2-21.1, 48:2-23 and the Board’s Orders in Docket Nos. AX13030197 and GO13090814.

As we reflect on the last five years post-Superstorm Sandy, especially the most recent major storm events that devastated Puerto Rico and the Gulf Coast, we are reminded of our charge to provide safe, adequate and reliable natural gas service to all customers, including those that are most susceptible to storm damage along the barrier islands. While a tremendous amount of work has been completed to date, and millions of dollars have been invested in the State to harden the Company’s natural gas system, there is still more to do.

By this Petition, South Jersey is proposing a second phase to its SHARP (“SHARP II”), which will allow the Company to continue its storm hardening efforts along the barrier islands. The Company proposes a three (3) year program, with a total program investment level of approximately \$110.25 million. Included in SHARP II are four (4) system enhancement projects within the coastal regions, including: (1) Excess Flow Valve (“EFV”) installation; (2) the Absecon Island Loop Project; (3) the Ocean City Loop Project; and (4) the Brigantine Bridge Project.

Approval of SHARP II will enable South Jersey to continue enhancing the safety, redundancy, reliability, and resiliency of its natural gas distribution system, making it less susceptible to storm damage. In addition, the State will see continued job creation similar in kind to those arising from the Company's previous and existing main replacement programs.

South Jersey proposes to recover the capital investment costs and expenses of SHARP II through annual base rate adjustments. As proposed, South Jersey's first SHARP II rate adjustment filing would be made on April 1, 2019 with no rate adjustment or customer bill impact from implementation of SHARP II until October 1, 2019.

**STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES**

IN THE MATTER OF THE PETITION OF SOUTH JERSEY GAS COMPANY TO CONTINUE ITS STORM HARDENING AND RELIABILITY PROGRAM (“SHARP II”) AND ASSOCIATED RECOVERY MECHANISM : **PETITION**
: **BPU DOCKET NO. _____**
:
:

TO THE HONORABLE BOARD OF PUBLIC UTILITIES:

Petitioner, South Jersey Gas Company (“South Jersey,” “Petitioner,” or the “Company”), a public utility corporation of the State of New Jersey, with its principal office at One South Jersey Plaza, Folsom, New Jersey 08037, hereby petitions this Honorable Board (“Board”) for authority to implement a continuation of its previously authorized Storm Hardening and Reliability Program (“SHARP”) and associated rate recovery mechanism pursuant to N.J.S.A. 48:2-21, 48:2-21.1, 48:2-23 and pursuant to the Board’s Orders in Docket Nos. AX13030197 and GO13090814 (hereafter “SHARP II”). In support thereof, Petitioner states as follows:

I. INTRODUCTION

1. South Jersey is engaged in the transmission, distribution, transportation, and sale of natural gas within its defined service territory within the State of New Jersey. Said service territory includes all or portions of the following Counties: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Salem. Within its service territory South Jersey serves approximately 381,000 customers.

2. South Jersey is subject to regulation by the Board for the purpose of ensuring that safe, adequate and proper natural gas service is provided to its customers pursuant to N.J.S.A. 48:2-23.

3. In furtherance of this responsibility, South Jersey is required to, and does maintain its public utility infrastructure, including the property, plant, facilities and equipment that comprise South Jersey's natural gas distribution and transmission systems, in such condition as to enable the provision of such service.

4. The Company believes that this obligation requires it to use reasonable means to prepare in advance for potential, weather-related contingencies. This Petition addresses such contingencies.

5. The Board has repeatedly recognized the prudence and need to help strengthen and protect infrastructure from future major storm events¹.

6. By this Petition, South Jersey is proposing a three (3) year SHARP II program, with a total program investment level of \$110.25 million, which includes the following four (4) system enhancement projects within the coastal regions: (1) Excess Flow Valve ("EFV") installation, (2) the Absecon Island Loop Project, (3) the Ocean City Loop Project, and (4) the Brigantine Bridge Project. The justification and costs associated with these projects are discussed in further detail in the Direct Testimony of Paul J. Zuccarino, Senior Vice President and Chief Operating Officer of South Jersey.

¹ I/M/O the Petition of Public Service Electric and Gas for the Approval of the Energy Strong Program, Docket Nos. EO13020155 and GO13020156 (May 21, 2014); I/M/O the Petition of South Jersey Gas Company for Approval of a Storm Hardening and Reliability Program (SHARP) and Associated Recovery Mechanism, Docket Nos. AX13030197 and GO13090814 (August 2014); I/M/O the Petition of New Jersey Natural Gas Company for Approval of the NJ RISE Program and Associated Rate Recovery Mechanism, Docket Nos. AX13030197 and GR13090828 (July 23, 2014); and I/M/O the Petition of Pivotal Utility Holdings, Inc. d/b/a/ Elizabethtown Gas for Approval of the Elizabethtown Natural Gas Distribution Utility Reinforcement Effort (ENDURE) Program and Deferred Accounting Treatment, Docket Nos. AX13030197 and GO13090826.

7. The comprehensive capital investments that South Jersey intends to make under SHARP II will enable the Company to continue enhancing the safety, redundancy, reliability and resiliency of its natural gas distribution system, as well as continue the employment benefits that have been created by its previous and existing infrastructure programs.

8. South Jersey is also subject to the Board's jurisdiction for the purpose of setting just and reasonable rates, N.J.S.A. 48:2-21 et seq. The Board has the authority to negotiate and approve an adjustment to rates during the pendency of any proceeding or at any other time pursuant to N.J.S.A. 48:2-21.1.

9. Although South Jersey is not proposing any rate adjustment associated with SHARP II at this time, South Jersey is requesting that the Board approve the proposed cost recovery mechanism for SHARP II, as described herein, pursuant to the aforementioned statutory authority.

II. SHARP II PROPOSAL

A. JUSTIFICATION FOR SHARP II

10. In 2011 and 2012, New Jersey was struck by several extraordinary "Major Storm Events" which caused severe damage to New Jersey's utility infrastructure, including Hurricane Irene on August 28, 2011, an unseasonal and powerful snowstorm on October 29, 2011, a derecho wind storm on June 20, 2012, Superstorm Sandy on October 29, 2012 and ten days later a powerful nor'easter on November 7, 2012.

11. Sandy's 90 mph winds and unprecedented storm damage caused catastrophic damage to dozens of communities across the State. Millions of residents were left without power, water, and natural gas service for extended periods of time following the storm. In this instance, South Jersey was spared the brunt of Sandy. However, events could well have been

different. Just ten days later, a nor'easter brought significant early season snowfall, damaging winds and tidal surge to New Jersey. Heavy snowfall caused even further damage to New Jersey's storm-ravaged infrastructure, leaving an additional 167,000 people without power.

12. In response thereto, the Board issued an Order on March 20, 2013 (the "March Order") in Docket No. AX13030197, which, inter alia, invited all regulated utilities subject to the Board's jurisdiction to submit detailed proposals for infrastructure upgrades designed to protect the State's utility infrastructure from future Major Storm Events.

13. In August 2014, the Board approved South Jersey's SHARP, in accordance with the terms of the March Order.

14. SHARP enabled South Jersey to accelerate the upgrade of its low pressure distribution systems to high pressure systems along the barrier islands, which were most prone to water intrusion from Major Storm Events.

15. SHARP was a three (3) year storm hardening and resiliency program, which ended June 30, 2017, and focused on mitigating the risks of water intrusion into SJG's distribution system along the barrier islands by replacing what were mostly vintage cast iron mains operating at less than a quarter pound of pressure per square inch with plastic mains and services operating at 60 pounds of pressure per square inch. SHARP also included the elimination of 52 regulator stations and installation of EFVs on single residential services within the coastal regions. As of June 30, 2017, SJG replaced approximately 92 miles of main and 11,090 services under SHARP.

16. Despite these accomplishments, the Company's storm hardening effort in and around the barrier islands is not yet complete. With the proposed SHARP II, South Jersey will

continue with the success that has been achieved through SHARP and provide significant additional benefits to South Jersey and its customers.

17. The timing of this filing is of special importance in light of the most recent Major Storm Events, including those along the Gulf and Eastern US coast lines. In the last two months alone, Hurricanes Harvey and Irma hit South Texas and Florida leaving millions without power and crippling businesses. Most recently, Hurricane Maria impaled Puerto Rico with reportedly “apocalyptic” devastation wiping out most of its infrastructure. Today, an estimated 80% of the Island is still without power.

18. In addition, on June 30, 2017, the Board approved \$2 million in Clean Energy Program funding for 13 town center microgrid feasibility studies to improve storm resiliency of critical facilities in the State. Atlantic City was awarded \$175,000 of the total program funding and proposes to add a new combined heat and power (CHP) unit, which will provide an additional 7.5 MW of electrical and thermal energy to support critical facilities such as the Atlanticare Regional Medical Center. The Atlantic City microgrid, as proposed, is predicated on a continuous supply of natural gas to Atlantic City.

19. As proposed, SHARP II will benefit South Jersey’s customers by increasing safety and reliability, and avoiding catastrophes arising from Major Storm Events. Specifically, the redundant feeds to Ocean City and Atlantic City will ensure the continuation of natural gas service to approximately 53,000 customers currently served by the Company in those areas in the event of a loss of either single feed line serving these communities.

20. Moreover, South Jersey anticipates that implementation of SHARP II will bring significant employment benefits to New Jersey. In addition to the jobs that have been created within the Company with the previously approved infrastructure programs, South Jersey

anticipates that SHARP II will support the employment of approximately 147 average full-time equivalent employees in each year of the proposed program.

21. SHARP II also supports and furthers the goals of the 2015 Updated New Jersey Energy Master Plan (“EMP”), which provides for improving energy infrastructure resiliency and emergency preparedness and response.

B. PROPOSED SHARP II PROGRAM

22. With SHARP II, South Jersey will invest approximately \$110.25 million over a three (3) year period focused on four (4) targeted system enhancement projects designed to improve the safety, redundancy, resiliency and integrity of SJG’s infrastructure, making it less susceptible to storm damage.

23. SHARP II is comprised of the following four (4) projects which are detailed further in the Direct Testimony of P. Zuccarino:

- (1) **Excess Flow Valve (“EFV”) Project:** The EFV Project involves the installation of approximately 20,000 EFVs in potential storm-affected areas of South Jersey’s service territory. Installation of EFVs will reduce the potential risk for gas venting to the atmosphere when major storms cause structural damage or if other service disruptions occur, as was experienced during Superstorm Sandy. The preliminary estimated costs are approximately \$73.1 million.
- (2) **Absecon Island Loop Project:** The Absecon Island Loop Project involves the installation of approximately 3 miles of 12” 250 psig distribution main between Atlantic City and Absecon, creating a redundancy loop that will improve reliability and limit potential storm-

related service disruptions in the area. This project also includes the installation of a District Regulator Station. Due to the extensive permitting required, it is expected to be in service June 2020. The preliminary estimated costs are approximately \$14 million.

(3) **Ocean City Loop Project:** The Ocean City Loop Project involves the installation of approximately 5.5 miles of 8” 250 psig distribution main to upgrade the secondary feed into Ocean City, in order to reduce the impact of flooding from a future major storm or extreme weather event. This project also includes the installation of a District Regulator Station in Ocean City. Due to the extensive permitting required, it is expected to be in service June 2021. The preliminary estimated costs are approximately \$19.1 million.

(4) **Brigantine Bridge Project:** The Brigantine Bridge Project involves installation of approximately 3,600 feet of 12” distribution main, which will run parallel to the existing steel pipeline (previously installed in 1984) underneath the Brigantine Bridge. This redundancy project will improve reliability and limit potential storm-related service disruptions in the area. Due to the extensive permitting required, it is expected to be in service June 2020. The preliminary estimated costs are approximately \$4.1 million.

24. Resiliency programs, through the installation of redundant gas mains, will improve the Company’s gas distribution system’s ability to avoid or recover more quickly from storm damage. By accelerating the capital investments for the installation of EFVs,

safety is enhanced and the associated work may serve to prevent the need in the future to curtail gas service to customers in vulnerable sections of South Jersey's service territory.

25. Faced with the next major storm, and absent the system enhancements proposed in this Petition, the Company estimates that natural gas service to over 53,000 customers could be impacted or lost for extended periods of time.

C. PROPOSED COST RECOVERY FOR SHARP II INVESTMENTS

26. South Jersey proposes to commence SHARP II on July 1, 2018.

27. The SHARP II capital expenditures are incremental to South Jersey's normal capital program levels. Therefore, South Jersey proposes to recover the capital investments and expenses of SHARP II with annual base rate adjustments calculated similarly to the method utilized for its most recent annual SHARP rate adjustments².

28. As detailed in the Direct Testimony of Kenneth J. Barcia, Manager, Rates and Revenue Requirements, South Jersey proposes to make annual base rate adjustment filings on April 1st of each year of the three (3) year program to include investments made through June 30th of that year. The filing would be updated by July 15th to provide actual data through June 30th, and the rate adjustment would be effective on October 1st. South Jersey's first SHARP II rate adjustment filing would be made on April 1, 2019, and there would be no rate adjustment or customer bill impact from the SHARP II program until October 1, 2019. South Jersey's last SHARP II rate adjustment filing would be made in 2021.

29. Consistent with the most recently implemented SHARP program, the revenue requirement for annual SHARP II rate adjustments would be derived utilizing the net

² See Board Order dated September 20, 2014 in I/M/O the Petition of South Jersey Gas Company for Approval of a Storm Hardening and Reliability Program (SHARP) and Associated Recovery Mechanism, BPU Docket No. G013090814.

investment, which will be calculated as the gross investment, plus Allowance for Funds Used During Construction, less accumulated depreciation and accumulated deferred income taxes. The return on this net investment will be calculated utilizing the Weighted Average Cost of Capital approved in the Company's most recent base rate case (Docket No. GR17010071) of 6.80% (6.08% net of tax), which includes a return on equity of 9.60% and an equity-to-capitalization ratio of 52.50%. Annual depreciation expense, net of tax, associated with the plant in service will be included for recovery and calculated utilizing the depreciation rates established in the Company's most recent base rate case of 1.37% for distribution mains, 2.01% for distribution services, and 1.29% for transmission mains. The Company will apply the revenue factor of 1.84335, which is the revenue factor that was utilized to set rates in its most recent base rate case, adjusted for subsequent Sales and Use Tax ("SUT") changes.

30. The annual rate changes associated with the SHARP II revenue requirements would be recovered through changes to base rates, apportioned among rate classes using the rate design utilized to set rates in the Company's most recent base rate case, and would be subject to refund based solely on a finding of imprudence by the Board in a future base rate case. SHARP II investments would be reviewed for prudence in the Company's next base rate case.

D. SHARP II RATE IMPACT

31. The revenue requirement and customer bill impacts associated with each annual rate adjustment will be set forth in each of the Company's April 1st annual filings. The first rate adjustment associated with SHARP II will not take place until October 1, 2019.

32. Based upon the proposed program spending, it is estimated that the base rate increase to the average residential heating customer using 100-therms in a month will be approximately \$1.10, or 0.8%, at the time of the first base rate adjustment on October 1, 2019.

33. Because the first rate change will not occur until October 1, 2019, South Jersey is not including a draft Public Notice at this time. South Jersey proposes to include a draft Public Notice with each of its annual April 1st rate adjustment filings, reflecting the rate change and customer bill impact proposed to be effective on the subsequent October 1st.

E. SHARP II REPORTING MECHANISM

34. South Jersey proposes to provide BPU Staff and Rate Counsel with annual reports detailing capital expenditures and program progress for SHARP II.

III. DIRECT TESTIMONY AND PROCEDURAL MATTERS

35. Attached to this Petition in support of the requests made herein are the following Exhibits:

Exhibit A: Direct Testimony of Paul J. Zuccarino, Senior Vice President and Chief Operating Officer

Exhibit B: Direct Testimony of Kenneth J. Barcia, Manager, Rates and Revenue Requirements

36. South Jersey has served notice and five (5) copies of this Petition upon the Director, Division of Rate Counsel, 140 East Front Street - 4th Floor, PO Box 003, Trenton, New Jersey 08625.

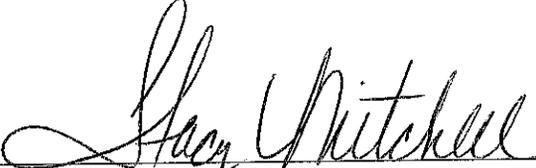
37. South Jersey has also served notice and two (2) copies of this Petition upon the Department of Law and Public Safety, Division of Law, 124 Halsey Street, PO Box 45029, Newark, New Jersey 07102.

IV. CONCLUSION AND REQUEST FOR RELIEF

For the foregoing reasons, and the reasons set forth in the Direct Testimony attached to this Petition, South Jersey respectfully requests that the Board issue an Order as follows:

1. Finding that SHARP II is in the public interest, is reasonable and is prudent;
2. Approving SHARP II, as set forth herein and in the attached Direct Testimony and Schedules, for a period of three (3) years with total program authorized investments of \$110.25 million; and
3. Approving the SHARP II cost recovery mechanism, as proposed herein and detailed in the attached Direct Testimony and Schedules.

Respectfully submitted,
SOUTH JERSEY GAS COMPANY


By: Stacy A. Mitchell, Esq.
Senior Director, Regulatory Affairs

DATED: November 1, 2017

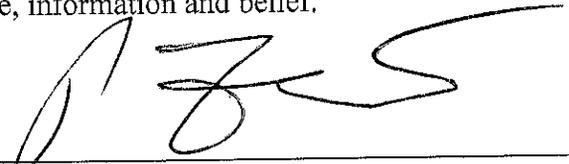
Communications addressed to Petitioner
in this case are to be sent to:

South Jersey Gas Company
Attention: Stacy A. Mitchell, Esq.
Senior Director, Regulatory Affairs
1 South Jersey Plaza
Folsom, NJ 08037
(609) 561-9000

VERIFICATION

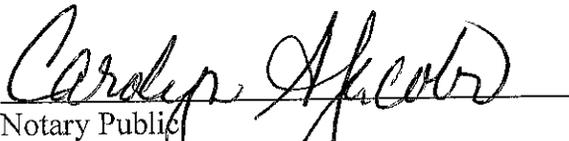
I, PAUL J. ZUCCARINO, of full age, being duly sworn according to law upon my oath, depose and say:

1. I am Senior Vice President & Chief Operations Officer of South Jersey Gas Company and am authorized to make this Verification on behalf of the Company.
2. I have reviewed the foregoing Petition and the information contained therein is true according to the best of my knowledge, information and belief.



PAUL J. ZUCCARINO

Sworn to and subscribed
before me this 1st
day of November 2017.



Notary Public

CAROLYN A. JACOBS
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires October 28, 2018

1 I am a member of the American Gas Association (AGA), and currently serve on its
2 Utility Committee. I am also a member of the Northeast Gas Association (NGA), and
3 currently serve on its Construction & Maintenance Committee.
4

5 **Q. What is the purpose of your testimony in this proceeding?**

6 A. The purpose of my testimony in this proceeding is to provide further detail regarding the
7 Company's proposal to continue its Storm Hardening and Reliability Program
8 ("SHARP") through a second phase program ("SHARP II"), which will enable the
9 Company to continue to enhance the reliability of its distribution systems and mitigate
10 against the impacts of the next major storm event on customers located in the coastal
11 areas of the Company's service territory. I will provide the supporting details of the
12 Company's proposal for SHARP II, and explain the need for the program, the benefits of
13 the program, and the overall anticipated costs of the program.
14

15 **II. PROGRAM DESCRIPTION**

16 **Q. Please describe the Company's most recent SHARP.**

17 A. Following several major storm events, including Superstorm Sandy, that materially
18 affected utility services in New Jersey, the New Jersey Board of Public Utilities (BPU)
19 called upon the State's utilities to assess storm readiness and to make proposals that
20 would mitigate potential damage to utility infrastructure resulting from future storms.
21 Following this request, the BPU approved the Company's proposal to implement
22 SHARP. SHARP was dedicated to enhancing system resiliency through the replacement
23 of low pressure distribution systems with more reliable high pressure mains and services

1 along the barrier islands. At the conclusion of SHARP on June 30, 2017, the Company
2 replaced a total of 92 miles of main and 11,090 services.

3
4 **Q. Please describe the Company’s proposed SHARP II program.**

5 A. By virtue of SHARP II, South Jersey proposes to continue its progression with a three (3)
6 year program focused on four (4) targeted system enhancement projects designed to
7 improve the redundancy, resiliency, integrity and safety of South Jersey’s infrastructure,
8 making it less susceptible to storm damage. The four proposed projects include: (1)
9 Excess Flow Valve (“EFV”) installation, (2) the Absecon Island Loop Project, (3) the
10 Ocean City Loop Project, and (4) the Brigantine Bridge Project.

11 The basis for including these projects in SHARP II is that each contributes to
12 storm readiness and is specifically designed to address impacts from major storm events
13 or extreme weather-related risks by hardening the system in targeted areas most likely to
14 be impacted. In addition, these capital expenditures are incremental to South Jersey’s
15 normal capital program levels. The total cost of SHARP II is currently projected to be
16 approximately \$110.25 million, as detailed further herein.

17 A description of each project, including timing and related costs, is attached
18 hereto as Schedule PJZ-1.

19
20 **Q. Please describe an Excess Flow Valve (“EFV”), the proposed EFV Project and the
21 overall benefit to South Jersey’s system.**

22 A. EFVs installed at the connection between the service line and the distribution main
23 automatically cut off gas flow that exceeds a preset rate of flow. EFVs eliminate the

1 hazardous condition that may occur when gas escapes from customer facilities within the
2 premise or Company facilities outside the premise resulting in gas build-up at the walls of
3 the home or business. The installation of EFVs was mandated by the Pipeline Integrity,
4 Protection, Enforcement and Safety Act of 2006, and its implementing regulations.

5 South Jersey has been installing EFVs on new or renewed services since 1998 in
6 accordance with Best Practices and as part of South Jersey's infrastructure replacement
7 programs (e.g., SHARP and the Company's Accelerated Infrastructure Replacement
8 Program, "AIRP"). Even so, the lack of EFVs along areas of the barrier islands and
9 waterfront communities served under older distribution systems can lead to situations
10 where gas can escape into the atmosphere, as previously experienced during Superstorm
11 Sandy. By installing EFVs, South Jersey can avoid curtailing service to these areas
12 during major storms and other service disruptions.

13 The proposed SHARP II EFV Project involves the installation of approximately
14 20,000 EFVs in potential storm-affected areas of South Jersey's territory, reducing the
15 potential risk for gas venting into the atmosphere when major storms cause structural
16 damage or if other service disruptions occur. The preliminary estimated cost of the EFV
17 Project is approximately \$73.1 million, as discussed further below.

18
19 **Q. Please describe the proposed Absecon Island Loop Project and its overall benefit to**
20 **South Jersey's system.**

21 A. Currently, Absecon Island is served by two feeds. On the north end, it is served by a 12"
22 250 psig line that follows Absecon Boulevard with pressure cuts at the north end to serve

1 the Huron Avenue and Massachusetts Avenue/Revel Site systems. In the center, a
2 separate feed comes from Albany Avenue to serve the Filbert Avenue system.

3 Failure of the Absecon Boulevard Line on a design day would cause a loss of
4 pressure to customers in the northern parts of Atlantic City and all of Brigantine
5 (approximately 11,500 and 7,300 customers potentially impacted, respectively). Failure
6 of the Albany Avenue Line on a design day would cause loss of pressure to customers in
7 the southern parts of Atlantic City and all of Ventnor, Margate, and Longport
8 (approximately 12,500 total customers potentially impacted).

9 In addition, the City of Atlantic City was recently awarded funds to complete a
10 microgrid feasibility study through the BPU's Clean Energy Program. The City proposes
11 to add a new combined heat and power (CHP) unit to generate an additional 7.5 MW of
12 electrical and thermal energy to support critical facilities in the City. Absent a reliable
13 fuel supply, a microgrid project such as this would not be possible.

14 To alleviate these concerns, the proposed Absecon Island Loop Project includes
15 the installation of approximately 3 miles of 12" 250 psig distribution main primarily
16 along Atlantic Avenue, from near the Filbert Station inlet to Absecon Boulevard, as well
17 as a District Regulator Station. This project also includes horizontal directional drilling
18 ("HDD") of 12" main across Inside Thorofare, Atlantic City. Creating this redundancy
19 loop will enhance reliability and limit potential storm-related service disruptions in the
20 area.

21 Due to the extensive permitting required, South Jersey anticipates that the
22 Absecon Island Loop Project will be in service June 2020. The preliminary estimated

1 cost of the Absecon Island Loop Project is approximately \$14 million, as discussed
2 further below.

3
4 **Q. Please describe the proposed Ocean City Loop Project and its overall benefit to**
5 **South Jersey's system.**

6 A. Currently, Ocean City is served by two feeds. The first feed is 7.5 miles of 8" 60 psig
7 distribution line at 34th Street (Roosevelt Blvd), starting on the mainland side at Corson's
8 Tavern Road Station in Seaville through Route 9 to Roosevelt Blvd and over to 34th
9 Street. The second feed is 8.5 miles of 8" distribution main, starting on the Mainland at
10 the outlet of the (new) station on Old Sea Isle Boulevard (Ocean View Station) and
11 Crosses into Sea Isle City. It then runs north through Sea Isle, Strathmere and Ocean
12 City to 45th Street, where it feeds through a District Regulator Station to the 60 psig
13 system.

14 Failure of the 34th Street feed on a design day would cause loss of pressure to
15 customers in the northern parts of Ocean City. If the Ocean View Station feed was out of
16 service, pressure to customers in Sea Isle, Strathmere, and the south end of Ocean City
17 will also be out of service (approximately 21,603 total customers potentially impacted).

18 To alleviate these concerns, the proposed Ocean City Loop Project includes the
19 installation of approximately 5.5 miles of 8" 250 psig distribution main along NJ Route 9
20 (Shore Road, Upper Township) to upgrade the second feed on 34th Street in Ocean City,
21 as well as the installation of a District Regulator Station. This improvement will result in
22 a high pressure loop to serve the three barrier island communities to reduce the impact of
23 flooding from a future major storm or extreme weather event.

1 Due to the extensive permitting required, South Jersey anticipates that the Ocean
2 City Loop Project will be in service June 2021. The preliminary estimated cost of the
3 Ocean City Loop Project is approximately \$19.1 million, as discussed further below.
4

5 **Q. Please describe the proposed Brigantine Bridge Project and the benefit to South**
6 **Jersey's system.**

7 A. Currently, a 10" steel distribution main, installed in 1984, is suspended underneath the
8 Brigantine Bridge, which crosses over the intra-coastal water way. This serves as a
9 single feed to approximately 7,300 customers in Brigantine.

10 South Jersey has identified the potential risk of bridge failure (material failure,
11 errant ship, fatigue, corrosion, etc.) and failure of pipe and pipe supports, which are
12 exposed to harsh weather elements and potential storm damage (salt air, high winds,
13 bridge corrosion, etc.) in need of mitigation. If this distribution main is damaged, it could
14 result in a loss of gas supply to all South Jersey customers in Brigantine (approximately
15 7,300+ customers potentially impacted).

16 To mitigate against potential damage to this single feed, South Jersey proposes to
17 include, as part of the proposed Brigantine Bridge Project, installation of approximately
18 3,600 feet of 12" distribution main parallel to the existing bridge right-of-way (ROW).
19 The pipeline will be installed by HDD and be located approximately 40 feet below the
20 sea floor. This redundancy project will improve reliability and limit potential storm-
21 related service disruptions in the area.

1 Again, due to the extensive permitting required, South Jersey expects this project
2 to be in service June 2020. The preliminary estimated cost of the Brigantine Bridge
3 Project is approximately \$4.1 million, as discussed further below.
4

5 **Q. Can you briefly explain why, in your opinion, these four proposed projects are**
6 **necessary additions to South Jersey’s systems?**

7 A. Yes. SHARP II capital improvement projects are focused on potential storm-affected
8 areas and will help minimize damage and service disruptions during a major storm event
9 or extreme weather conditions, improving safety, system integrity and reliability. The
10 costs associated with these enhancement projects, including reinforcing the South Jersey
11 distribution system and installing EFVs, are far less than the incalculable restoration costs
12 that South Jersey would otherwise incur when reacting to emergency situations. In
13 addition to South Jersey’s costs, there would be impacts on and losses incurred by
14 communities, customers and businesses when service is disrupted.
15

16 **Q. How long will it take to complete these SHARP II projects as proposed?**

17 A. South Jersey anticipates that the four projects will be completed over a three-year time
18 frame following the issuance of a BPU Order approving SHARP II. Once BPU approval
19 is obtained, work will initially begin on the EFV Project. The other three projects require
20 significant engineering, design and permitting work prior to the start of construction.
21 Additionally, some of these projects may require special permits such as Army Corps of
22 Engineers, CAFRA, Tidelands, Waterfront Development, etc. As such, the engineering

1 and permitting phase of the pipeline projects is anticipated to take approximately 12 to 18
2 months to complete, assuming no delay from State agencies.

3 In addition, the Company will coordinate efforts with municipalities for road
4 openings and minimization of community impacts. The timing of construction activities
5 will also account for winter and summer construction moratoriums in effect for many
6 portions of the Company's system.

7
8 **Q. What resources are required to successfully complete the SHARP II work?**

9 A. South Jersey will continue to utilize outside contractors for a majority of the planned
10 enhancement and replacement work in SHARP II. South Jersey estimates that SHARP II
11 will support the employment of approximately 441 total full-time equivalent contractor
12 employees over the proposed three-year program.

13
14 **Q. How were the preliminary cost estimates for the projects associated with SHARP II
15 developed?**

16 A. The current preliminary project cost estimates are based upon early assessments of
17 project requirements, historical and current cost information on similar projects, as well
18 competitive contractor bid prices. The actual project costs may vary from the preliminary
19 cost estimates provided herein once the Company determines engineering, permitting and
20 constructions timelines, as well as contractor bids and any construction issues that may
21 arise. South Jersey will file an annual update to each project identifying any significant
22 changes in the projects and associated estimated costs.

23

1 **III. OPERATIONAL AND CUSTOMER BENEFITS**

2 **Q. What operational and public safety benefits will be achieved with SHARP II?**

3 A. The objective of SHARP II is to ensure continued service to customers located in coastal
4 areas during a major storm event and to ensure that, if a system shut down is required, it
5 could be re-energized and service could be restored relatively quickly with minimal
6 impacts on customers. These proposed system redundancy projects would allow South
7 Jersey to proactively address future storm-related threats to the Company's distribution
8 system by minimizing the likelihood and duration of service disruptions, as well as the
9 associated costs. In addition, the installation of EFV's will reduce the risk of gas
10 blowing, and potentially harmful fires, when major storms cause structural damage that
11 separates structures from their gas supply.

12
13 **IV. SUMMARY**

14 **Q. Please summarize why the BPU should approve SHARP II.**

15 A. SHARP II represents the continuation of South Jersey's efforts to eliminate and mitigate
16 the impact that a major storm event could have on its customers in coastal communities.
17 In light of recent hurricanes and weather-related incidents, South Jersey realizes it has
18 been very fortunate, but has also evaluated the effect the storms would have had if South
19 Jersey had suffered a direct impact. While we have completed significant work to
20 upgrade our low pressure distribution system to high pressure within the last three years
21 as part of the original SHARP program, we have identified system redundancy risks
22 within the coastal communities that still need to be addressed to ensure we can provide
23 continued safe and reliable service to our customers, even in times of significant weather

1 events. Approval and implementation of SHARP II will minimize the likelihood of
2 catastrophic storm damage to South Jersey's distribution system and will enhance the
3 operability and resiliency of South Jersey's system. For these reasons, I believe the BPU
4 should approve the Company's proposed SHARP II filing.

5

6 **Q. Does this conclude your Direct Testimony?**

7 A. Yes, it does.

**South Jersey Gas Company
Storm Hardening and Reliability Program (“SHARP II”)
Project Descriptions**

Project	Excess Flow Valves (EFVs)
Preliminary Cost Estimate	\$73.1 million
Concern/Risk	The lack of EFVs on services along areas of the barrier islands and waterfront communities served under older distribution systems can lead to situations where gas can escape to the atmosphere. This can result in gas blowing, and potentially harmful fires, when major storms cause structural damage that separates structures from their gas supply, as was seen during Superstorm Sandy. By installing EFVs, South Jersey can avoid curtailing service to these areas during major storm and service disruptions.
Description	This project involves the installation of approximately 20,000 EFVs in potential storm-affected areas of South Jersey’s territory that currently do not have EFV devices and will not be installed as part of SJG’s Accelerated Infrastructure Replacement Program (“AIRP II”). The project will reduce the potential risk for gas venting to the atmosphere when major storms cause structural damage or if other service disruptions occur.
Estimated Start Date	2018
Estimated Completion Date	2020

**South Jersey Gas Company
Storm Hardening and Reliability Program (“SHARP II”)
Project Descriptions**

Project	Absecon Island Loop
Preliminary Cost Estimate	\$14 million
Existing Infrastructure	Absecon Island is currently served by 2 feeds. On the north end, it is served by a 12” 250 psig line that follows Absecon Boulevard with pressure cuts at the north end to serve the Huron Avenue and Massachusetts Avenue/Revel Site systems. In the Center, a separate feed comes from Albany Avenue to serve the Filbert Avenue system.
Concern/Risk	Failure of the Absecon Boulevard Line on a design day would cause a loss of pressure to customers in the northern parts of Atlantic City and all of Brigantine (Approximately 11,500 and 7,300 customers potentially impacted, respectively). Failure of the Albany Avenue Line on a design day would cause loss of pressure to customers in the southern parts of Atlantic City and all of Ventnor, Margate and Longport (Approximately 12,500 total customers potentially impacted).
Description	This project involves the installation of approximately 3 miles of 12” 250 psig distribution main primarily along Atlantic Avenue, from near the Filbert Station inlet to Absecon Boulevard, as well as a District Regulator Station. This project also includes horizontal directional drilling (“HDD”) of 12” main across Inside Thorofare, Atlantic City. Creating this redundancy loop will enhance reliability and limit potential storm-related service disruptions in the area.
Estimated Start Date	Design/Permitting 2018-2019
Estimated Completion Date	Construction 2019-2020
Estimated In-Service Date	June 2020

**South Jersey Gas Company
Storm Hardening and Reliability Program (“SHARP II”)
Project Descriptions**

Project	Ocean City Loop
Preliminary Cost Estimate	\$19.1 million
Existing Infrastructure	Ocean City is currently served by 2 feeds. The first feed is 7.5 miles of 8” 60 psig distribution line at 34th Street (Roosevelt Blvd), starting on the mainland side at Corson’s Tavern Road Station in Seaville through Route 9 to Roosevelt Blvd and over to 34th street. The second feed is 8.5 miles of 8” distribution main, starting on the Mainland at the outlet of the (new) station on Old Sea Isle Blvd (Ocean View Station) and Crosses into Sea Isle City. It then runs north through Sea Isle, Strathmere and Ocean City to 45th Street, where it feeds through a District Regulator Station to the 60 psig system.
Concern/Risk	Failure of the 34th street feed on a design day would cause loss of pressure to customers in the northern parts of Ocean City. If the Ocean View Station feed was out of service, pressure to customers in Sea Isle, Strathmere, and the south end of Ocean City will also be out of service (approximately 21,603 total customers potentially impacted).
Description	This project involves the installation of approximately 5.5 miles of 8” 250 psig distribution main along NJ Route 9 (Shore Road, Upper Township) to upgrade the second feed on 34th Street in Ocean City, as well as the installation of a District Regulator Station. This improvement will result in a high pressure loop to serve the three barrier island communities to reduce the impact of flooding from a future major storm or extreme weather event.
Estimated Start Date	Design/Permitting 2018-2019
Estimated Completion Date	Construction 2019-2021
Estimated In-Service Date	June 2021

**South Jersey Gas Company
Storm Hardening and Reliability Program (“SHARP II”)
Project Descriptions**

Project	Brigantine Bridge
Preliminary Cost Estimate	\$4.1 million
Existing Infrastructure	The current 10” steel distribution main was installed in 1984, hanging underneath the Brigantine Bridge, which crosses over the intra-coastal water way. This serves as a single feed to approximately 7,300 customers in Brigantine.
Concern/Risk	There is potential risk of bridge failure (material failure, errant ship, fatigue, corrosion), and failure of pipe and pipe supports, which are exposed to harsh weather elements and potential storm damage (salt air, high winds, bridge corrosion) in need of mitigation. If the distribution main is damaged, it could result in loss of gas supply to all South Jersey customers in Brigantine (Approximately 7,300+ customers potentially impacted).
Description	This project involves installation of approximately 3,600 feet of 12” distribution main parallel to the existing bridge right-of-way (ROW). The pipeline will be installed by HDD and be located approximately 40 feet below the sea floor. This redundancy project will improve reliability and limit potential storm-related service disruptions in the area.
Estimated Start Date	Design/Permitting 2019
Estimated Completion Date	Construction 2020
Estimated In-Service Date	June 2020

1 **Q. What are your current responsibilities as Manager, Rates and Revenue**
2 **Requirements?**

3 A. In my current role, I manage the daily activity of the Company's Rates and Revenue
4 Requirements department and provide support and strategic direction regarding rate and
5 revenue related filings before the Board of Public Utilities ("BPU" or the "Board"). I
6 also assist with the development and interpretation of the Company's tariff.

7

8 **II. PURPOSE OF TESTIMONY**

9 **Q. What is the purpose of your testimony in this proceeding?**

10 A. My testimony provides the details for calculating the revenue requirements, the
11 associated cost recovery mechanism, rate design and customer bill impacts associated
12 with the Company's proposal to continue its Storm Hardening and Reliability Program
13 ("SHARP II"). Details regarding the proposed SHARP II, including program elements,
14 duration, capital expenditures and justification, are contained in the Direct Testimony of
15 Paul J. Zuccarino, Senior Vice President and Chief Operations Officer for the Company.

16

17 **III. SHARP II REVENUE REQUIREMENTS AND COST RECOVERY**

18 **Q. Please describe SJG's proposed cost recovery method for SHARP II.**

19 A. SJG is proposing to recover the annual revenue requirements associated with SHARP II
20 in the same manner as its initial Storm Hardening and Reliability Program ("SHARP"),
21 as previously approved by the Board. The revenue requirements will be calculated using
22 the same formula and will be reflected in base rates through annual base rate adjustments
23 to take place on October 1 of each year of the program.

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Q. How will the SHARP II revenue requirements be calculated?

A. The revenue requirements calculation is as follows:

$$\text{Revenue Requirements} = ((\text{SHARP II Rate Base} * \text{After Tax Weighted Average Cost of Capital (WACC)}) + \text{Depreciation Expense (net of tax)}) * \text{Revenue Factor}$$

The detailed calculation of the forecasted revenue requirements for each year of the proposed SHARP II are provided in Schedule KJB -1.

Q. How is the SHARP II rate base calculated?

A. SHARP II rate base is calculated as gross plant-in-service, plus Allowance for Funds Used During Construction (AFUDC), less accumulated depreciation and less Accumulated Deferred Income Taxes (ADIT). Accumulated depreciation is the sum of the depreciation expense incurred from the date projects are placed into service until they are rolled into base rates and fifty percent of the annual depreciation expense on total plant in service.

Q. How is the after-tax WACC calculated?

A. SJG is proposing to utilize the after-tax WACC approved in its most recent base rate case (Docket No. GR17010071). The WACC is 6.80% (6.08% net of tax), which is based on a return on equity of 9.60% and an equity component in the capital structure of 52.50%. The calculation of the WACC is contained in Schedule KJB - 2.

Q. How is depreciation expense, net of tax, calculated?

1 A. Depreciation expense is calculated based upon the asset class placed in service (i.e.,
2 distribution mains, distribution services, or transmission mains) multiplied by the
3 associated depreciation rate for that asset, as established in the Company's most recent
4 base rate case. The depreciation rate utilized for distribution mains is 1.37%, for
5 distribution services is 2.01%, and for transmission mains is 1.29%. Because the
6 revenue requirement is adjusted by a revenue factor that includes Federal and State
7 income taxes, the depreciation expense is calculated on a net of tax basis. For Federal tax
8 purposes, the tax basis associated with the depreciation expense is calculated as direct
9 plant-in-service, plus the debt component of the AFUDC transferred into service.
10 Because there is no tax deduction associated with the equity component of AFUDC, it is
11 not included in the tax basis of the plant-in-service. As a result, there is no tax
12 depreciation expense associated with the AFUDC equity portion of the plant-in-service.
13 The annual depreciation expense, net of tax, is calculated as the annual depreciation
14 expense, multiplied by one, minus the Company's current tax rate. Since AFUDC equity
15 is not included in the tax basis, the equity portion must be grossed-up for taxes utilizing
16 the revenue factor in order for SJG to earn its allowed rate of return.

17
18 **Q. What is the revenue factor utilized in the calculation of the revenue requirement?**
19 A. The revenue factor adjusts the revenue requirement to reflect Federal and State income
20 taxes, as well as the costs associated with Board and Division of Rate Counsel Annual
21 Assessments and Bad Debt. The revenue factor utilized by the Company in its
22 calculation of the revenue requirement is 1.84335, which is the revenue factor that was
23 utilized to set rates in the Company's most recent base rate case, adjusted for subsequent

1 Sales and Use Tax (SUT) changes. The calculation of the revenue factor is attached
2 hereto as Schedule KJB – 3.

3
4 **Q. What type of expenditures are included in the SHARP II rate base?**

5 A. The SHARP II rate base will include all capital expenditures associated with SHARP II
6 projects, including actual engineering, design and construction costs, as well as actual
7 labor, materials, overhead, property acquisition and capitalized AFUDC associated with
8 the projects (the “SHARP II Investment Costs”).

9
10 **Q. Will any of the SHARP II expenditures be eligible for AFUDC?**

11 A. Yes. While SHARP II projects are under construction, they will be separately tracked in
12 a Construction Work In Progress (CWIP) account and will accrue AFUDC on a monthly
13 basis. The AFUDC will be capitalized and included in the CWIP balance to be recovered
14 through an annual base rate adjustment. At the time the respective project is deemed
15 used and useful, it will be transferred to a Utility Plant in Service (UPIS) account and the
16 booking of AFUDC will cease. This proposal is identical to the methodology approved
17 by the Board for the Company’s most recent SHARP filing.

18
19 **Q. Please explain how AFUDC will be calculated on SHARP II projects.**

20 A. The Company is proposing to calculate AFUDC on a monthly basis in accordance with
21 the “Modified FERC Method” that was approved by the Board in the Company’s SHARP
22 filing. Specifically, (1) when the Company's total CWIP balance, including CWIP
23 associated with SHARP II projects, is less than or equal to the Company's outstanding

1 short-term debt (STD) balance, the applicable AFUDC rate will be equal to the
2 Company's monthly cost of STD, and (2) when the Company's total CWIP balance,
3 including CWIP associated with SHARP II projects, is greater than the Company's
4 outstanding STD balance, the applicable AFUDC rate will result in a blended monthly
5 AFUDC calculation. The blended AFUDC rate calculation will include a STD rate for
6 that portion of the CWIP balance equal to the month-end STD balance and the proposed
7 SHARP II WACC, for the portion of SHARP II CWIP in excess of South Jersey's month-
8 end STD balance. If South Jersey has no STD at month end, the AFUDC rate will be the
9 SHARP II WACC.

10
11 **Q. Please explain the depreciation treatment for SHARP II projects.**

12 A. The Company will begin to depreciate SHARP II project assets once they are placed in
13 service. Depreciation expense will be calculated based on the asset class (i.e., distribution
14 mains, distribution services, or transmission mains) multiplied by the associated
15 depreciation rate for that asset, as established in the Company's most recent base rate
16 case. The depreciation rate utilized for distribution mains is 1.37%, for distribution
17 services is 2.01%, and for transmission mains is 1.29%.

18
19 **Q. Please explain the proposed SHARP II cost recovery mechanism and the process for
20 adjusting the Company's base rates.**

21 A. South Jersey proposes to recover the revenue requirements associated with SHARP II
22 through annual rate base roll-in filings that utilize the schedule currently approved by the
23 Board for the Company's SHARP Annual Base Rate Adjustments. The proposed

1 schedule for the annual filings, investment end date and the rate effective date is listed
2 below:

3 a. Revenue Requirements associated with Program investments that are placed into
4 service through and including June 30, 2019 shall go into base rates effective
5 October 1, 2019. South Jersey shall make its initial filing for such rates in April
6 2019, and update such filing for actual data through June 30, 2019 by July 15,
7 2019.

8 b. Revenue Requirements associated with Program investments that are placed into
9 service through and including June 30, 2020 shall go into base rates effective
10 October 1, 2020. South Jersey shall make its initial filing for such rates in April
11 2020, and update such filing for actual data through June 30, 2020 by July 15,
12 2020.

13 c. Revenue Requirements associated with Program investments that are placed into
14 service through and including June 30, 2021 shall go into base rates effective
15 October 1, 2021. South Jersey shall make its initial filing for such rates in April
16 2021, and update such filing for actual data through June 30, 2021 by July 15,
17 2021.

18
19 **Q. What rate design is the Company proposing to use for the annual SHARP II Rate**
20 **Adjustments?**

21 A. The Company is proposing to utilize the rate design approved by the Board in its most
22 recent base rate case. The proposed annual SHARP II Rate Adjustments will be
23 effectuated by adjusting the volumetric rate for all customer classes in the manner

1 prescribed in the Company's most recent base rate case and utilizing the billing
2 determinants utilized to set rates in that case. Further, the Margin Revenue Factor set
3 forth in the Company's Conservation Incentive Program (CIP) tariff must also be revised
4 to reflect the annual SHARP II Rate Adjustments. The rate design for the first forecasted
5 roll-in to take place on October 1, 2019 is shown in Schedule KJB - 4. For SHARP II
6 base rate roll-ins made as part of, or after, the Company's next base rate case, the
7 Company may propose modifications to the roll-in rate design associated with SHARP II.
8

9 **Q. What are the benefits of the proposed cost recovery mechanism?**

10 A. The proposed cost recovery mechanism will allow South Jersey to continue making
11 significant incremental capital investments to improve the safety and reliability of its
12 system, while recovering its costs in a timely manner and thus, maintaining its ability to
13 access the credit and capital markets. Additionally, by reflecting SHARP II investments
14 in rates on an annual basis, shortly after authorized investments are expended and prior to
15 the Company's next base rate case, customer bills are impacted in smaller increments. As
16 a matter of cost savings to the Company's customers, current low natural gas prices make
17 this the opportune time to continue investing in infrastructure improvements. Natural gas
18 prices have decreased significantly in recent years, allowing South Jersey's customers to
19 see significant decreases in their monthly natural gas bills.
20

21 **Q. What are the estimated bill impacts of the proposed SHARP II to South Jersey's**
22 **customers?**

1 A. The revenue requirement calculations and customer bill impacts will be provided in each
2 of the Company's annual filings seeking a SHARP II Rate Adjustment. Based on the
3 estimated revenue requirements for the first year of SHARP II, the bill impact of the first
4 SHARP II Rate Adjustment on October 1, 2019 to a typical residential heating customer
5 utilizing 100 therms of gas during a winter month is an increase of \$1.10, or 0.8%. Based
6 upon the proposed program spending, the forecasted typical annual bill impacts for a
7 residential heating customer for the duration of SHARP II are set forth on Schedule KJB-
8 5.

9

10 **Q. Does this conclude your prepared direct testimony?**

11 A. Yes, it does.

SOUTH JERSEY GAS COMPANY
STORM HARDENING AND RELIABILITY PROGRAM ("SHARP II")
REVENUE REQUIREMENT AND RATE CALCULATION
Year 1 - Roll-In 10/1/2019

Line No.		
1		
2	Projected Plant in Service as of June 30, 2019	\$33,550,000
3	AFUDC	217,861
4	Gross Plant in Service as of June 30, 2019	<u>33,767,861</u>
5		
6	Accumulated Depreciation	<u>(651,361)</u>
7		
8	Rate Base	33,116,500
9		
10	Accumulated Deferred Tax	<u>(4,529,503)</u>
11		
12	Net Rate Base	28,586,997
13		
14	Rate of Return - Net	<u>6.08%</u>
15		
16	Return Requirement (Net of Tax)	1,738,089
17		
18	Depreciation Expense, Net of Tax	<u>399,817</u>
19		
20	Revenue Recovery	2,137,907
21		
22	Revenue Factor	<u>1.84335</u>
23		
24	Total Revenue Requirement, including SUT	<u>\$3,940,901</u>
25		
26	Total Revenue Requirement, excluding SUT	<u>\$3,696,038</u>

SOUTH JERSEY GAS COMPANY
STORM HARDENING AND RELIABILITY PROGRAM ("SHARP II")
REVENUE REQUIREMENT AND RATE CALCULATION
Year 2 - Roll-In 10/1/2020

Line No.		
1		
2	Projected Plant in Service as of June 30, 2020	\$57,575,000
3	AFUDC	247,590
4	Gross Plant in Service as of June 30, 2020	<u>57,822,590</u>
5		
6	Accumulated Depreciation	<u>(942,001)</u>
7		
8	Rate Base	56,880,589
9		
10	Accumulated Deferred Tax	<u>(2,774,980)</u>
11		
12	Net Rate Base	54,105,608
13		
14	Rate of Return - Net	<u>6.08%</u>
15		
16	Return Requirement (Net of Tax)	3,289,621
17		
18	Depreciation Expense, Net of Tax	<u>611,773</u>
19		
20	Revenue Recovery	3,901,394
21		
22	Revenue Factor	<u>1.84335</u>
23		
24	Total Revenue Requirement, including SUT	<u>\$7,191,618</u>
25		
26	Total Revenue Requirement, excluding SUT	<u>\$6,744,777</u>

SOUTH JERSEY GAS COMPANY
STORM HARDENING AND RELIABILITY PROGRAM ("SHARP II")
REVENUE REQUIREMENT AND RATE CALCULATION
Year 3 - Roll-In 10/1/2021

Line No.		
1		
2	Projected Plant in Service as of June 30, 2021	\$19,125,000
3	AFUDC	168,716
4	Gross Plant in Service as of June 30, 2021	<u>19,293,716</u>
5		
6	Accumulated Depreciation	<u>(210,339)</u>
7		
8	Rate Base	19,083,377
9		
10	Accumulated Deferred Tax	<u>(193,884)</u>
11		
12	Net Rate Base	18,889,493
13		
14	Rate of Return - Net	<u>6.08%</u>
15		
16	Return Requirement (Net of Tax)	1,148,481
17		
18	Depreciation Expense, Net of Tax	<u>147,218</u>
19		
20	Revenue Recovery	1,295,699
21		
22	Revenue Factor	<u>1.84335</u>
23		
24	Total Revenue Requirement, including SUT	<u>\$2,388,421</u>
25		
26	Total Revenue Requirement, excluding SUT	<u>\$2,240,020</u>

SOUTH JERSEY GAS COMPANY
STORM HARDENING AND RELIABILITY PROGRAM ("SHARP II")
WEIGHTED AVERAGE COST OF CAPITAL

<u>Type of Capital</u>	<u>Ratios</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>	<u>After-Tax Weighted Cost Rate</u>
Long-Term Debt	47.50%	3.70%	1.76%	1.04%
Common Equity	<u>52.50%</u>	9.60%	<u>5.04%</u>	<u>5.04%</u>
	<u>100.00%</u>		<u>6.80%</u>	<u>6.08%</u>

SOUTH JERSEY GAS COMPANY
STORM HARDENING AND RELIABILITY PROGRAM ("SHARP II")
DERIVATION OF REVENUE FACTOR

<u>Line No.</u>		
1	Components:	
2		
3	Sales and Use Tax (SUT)	6.625%
4		
5	Public Utility Assessment Tax (PUA)	0.2505%
6		
7	Bad Debt Provision (Bad Debt)	2.0037%
8		
9	Federal Income Tax (FIT)	35.0000%
10		
11	CBT	9.0000%
12		
13	Operating Revenue	1.0000
14		
15		
16	Revenue Factor Calculation:	1.84335
17		
18		
19		$\left[\frac{1}{1 - [(0.65 * 0.09) + 0.35]} \right] * 1.020037 * 1.002505 * 1.06625 = 1.84335$
20		
21		
22		

**SOUTH JERSEY GAS COMPANY
STORM HARDENING & RELIABILITY PROGRAM EXTENSION (SHARP II)
BASE AND TOTAL REVENUES AT PRESENT AND PROPOSED RATES**

<u>Component</u>	<u>Amount</u>	<u>Units</u>	<u>Present Rates (Effective Nov 1, 2017)</u>		<u>Proposed Rates (Effective Oct 1, 2019)</u>		
			<u>Rate</u>	<u>Revenue</u>	<u>Rate</u>	<u>Revenue</u>	<u>Increase</u>
			<u>RSG</u>		<u>RSG</u>		
<u>Residential Service</u>							
Customer Charge	4,280,934	Bills	\$ 10.00	\$ 42,809,340	\$ 10.00	\$ 42,809,340	
Distribution Charge	253,181,413	Therms	0.697621	176,624,670	0.707904	179,228,135	
Total Base Revenues				\$ 219,434,010		\$ 222,037,475	1.2%

			<u>GSG</u>		<u>GSG</u>		
<u>General Service (0-100,000 Annual Therms)</u>							
Customer Charge	299,071	Bills	\$ 31.75	\$ 9,495,504	\$ 31.75	\$ 9,495,504	
Distribution Charge	89,582,097	Therms	0.582636	52,193,755	0.590807	52,925,730	
Total Base Revenues				\$ 61,689,259		\$ 62,421,234	1.2%

			<u>GSG-LV</u>		<u>GSG-LV</u>		
<u>General Service Large Volume (100,000 + Annual Therms)</u>							
Customer Charge	2,170	Bills	\$ 150.00	\$ 325,500	\$ 150.00	\$ 325,500	
Demand Charge	212,776	Mcf	10.5000	2,234,148	10.5000	2,234,148	
Distribution Charge	32,241,055	Therms	0.289580	9,336,365	0.293958	9,477,516	
Total Base Revenues				\$ 11,896,013		\$ 12,037,164	1.2%

			<u>CTS</u>		<u>CTS</u>		
<u>Comprehensive Firm Transportation Service</u>							
Customer Charge	555	Bills	\$ 600.00	\$ 333,000	\$ 600.00	\$ 333,000	
Demand Charge	133,720	Mcf	31.0000	4,145,320	31.0000	4,145,320	
Distribution Charge	27,898,657	Therms	0.064822	1,808,447	0.067496	1,883,048	
Total Base Revenues				\$ 6,286,767		\$ 6,361,368	1.2%

**SOUTH JERSEY GAS COMPANY
STORM HARDENING & RELIABILITY PROGRAM EXTENSION (SHARP II)
BASE AND TOTAL REVENUES AT PRESENT AND PROPOSED RATES**

<u>Component</u>	<u>Amount</u>	<u>Units</u>	<u>Present Rates (Effective Nov 1, 2017)</u>		<u>Proposed Rates (Effective Oct 1, 2019)</u>		
			<u>Rate</u>	<u>Revenue</u>	<u>Rate</u>	<u>Revenue</u>	<u>Increase</u>
			<u>LVS</u>		<u>LVS</u>		
<u>Large Volume Service</u>							
Customer Charge	313	Bills	\$ 900.00	\$ 281,700	\$ 900.00	\$ 281,700	
Demand Charge	349,950	Mcf	18.0000	6,299,100	18.0000	6,299,100	
Distribution Charge	79,591,210	Therms	0.046245	3,680,696	0.047775	3,802,470	
Total Base Revenues				\$ 10,261,496		\$ 10,383,270	1.2%

			<u>EGS</u>		<u>EGS</u>		
<u>Electric Generation Service</u>							
Customer Charge	108	Bills	\$ 75.00	\$ 8,100	\$ 75.00	\$ 8,100	
Demand Charge	8,392	Mcf	8.250	69,234	8.250	69,234	
Distribution Charge (Nov - Mar.)	559,943	Therms	0.137433	76,955	0.139535	78,132	
Distribution Charge (Apr - Oct.)	789,736	Therms	0.107433	84,844	0.109535	86,504	
Total Base Revenues				\$ 239,132		\$ 241,969	1.2%

			<u>EGS-LV</u>		<u>EGS-LV</u>		
<u>Electric Generation Service - Large Volume</u>							
Customer Charge	84	Bills	\$ 900.00	75,600	\$ 900.00	75,600	
Demand Charge	45,200	Mcf	23.160086	1,046,836	23.454726	1,060,154	
Total Base Revenues				\$ 1,122,436		\$ 1,135,754	1.2%

South Jersey Gas Company
Storm Hardening and Reliability Program Extension (SHARP II)
Annual Bill Impacts
Proposed Residential Heat Sales (727 Therms)

<u>Effective Date</u>	<u>Cost of Service</u>	<u>Annual Bill</u>	<u>Change (\$)</u>	<u>Change (%)</u>
Current Bill	\$0.745582	\$1,056.04		
October 1, 2019	\$0.756572	\$1,064.03	\$7.99	0.8%
October 1, 2020	\$0.771419	\$1,074.81	\$10.78	1.0%
October 1, 2021	\$0.776349	\$1,078.39	\$3.58	0.3%