

COUNCIL OF THE CITY OF PHILADELPHIA
COMMITTEE ON GLOBAL OPPORTUNITIES
AND THE CREATIVE/INNOVATIVE ECONOMY

Room 400, City Hall
Philadelphia, Pennsylvania
Thursday, April 16, 2015
1:25 p.m.

PRESENT:

COUNCILMAN DAVID OH, CHAIR
COUNCILMAN BRIAN J. O'NEILL
COUNCILWOMAN BLONDELL REYNOLDS BROWN

RESOLUTION 150255 - Resolution authorizing
Council's Committee on Global Opportunities
and the Creative/Innovative Economy to hold
hearings concerning Liquified National Gas
(LNG) export opportunities for Philadelphia.

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COUNCILMAN OH: Good afternoon.
In one minute we are going to begin the
hearing scheduled for 1 o'clock for the
Committee on Global Opportunities and the
Creative/Innovative Economy on LNG and
LNG opportunities.

I'll ask the Clerk to read the
title of the resolution.

THE CLERK: Resolution 150255,
authorizing Council's Committee on Global
Opportunities and the Creative/Innovative
Economy to hold hearings concerning
Liquefied Natural Gas export
opportunities for Philadelphia.

COUNCILMAN OH: Thank you very
much.

I will note that at this
hearing Councilwoman Blondell Reynolds
Brown is to my left, and I'll ask,
Councilwoman, do you have any opening
comments?

COUNCILWOMAN BROWN: Thank you,
Mr. Chairman. First let me congratulate
you for getting on the front of this

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2 issue. As Chair of City Council's
3 Committee on the Environment and
4 Sustainability, I do like to at least pay
5 attention to where our City may be headed
6 on this issue, and look forward to the
7 testimony to see if there might be any
8 policy opportunities for us to pursue
9 later down this road.

10 COUNCILMAN OH: Thank you very
11 much, Councilwoman.

12 I will note that the
13 Councilwoman has been a leader in Green
14 Philadelphia and environmental issues,
15 but she has also been a champion for
16 moving our economy forward and providing
17 answers to the problems that we face here
18 in Philadelphia.

19 With that, let me just make a
20 brief statement that today's hearing is
21 the continuation of a series of hearings
22 that we've held on the future of
23 Philadelphia in energy and particularly
24 with natural gas and in this case with
25 the capabilities of PGW surrounding

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2 liquid natural gas, or LNG. And the
3 question that we're trying to answer
4 today through very credible and expert
5 testimony is, can Philadelphia benefit
6 from LNG exports domestically or abroad
7 and what does it take so that the people
8 of Philadelphia can actually have
9 criteria by which to base for themselves
10 the idea of what is the value of PGW,
11 what is the opportunity for this City.
12 And after we deal with that question,
13 there is another question, and the
14 question is for the people of our City,
15 now that we know what we can or can't do,
16 what should we do. And that is a
17 question for another day, but today's
18 question is what can we do.

19 And so with that, I will ask
20 the Clerk to call the first witness.

21 THE CLERK: Doug Moser,
22 Philadelphia Gas Works.

23 (Witness approached witness
24 table.)

25 COUNCILMAN OH: Good afternoon.

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2 MR. MOSER: Good afternoon.

3 COUNCILMAN OH: Would you
4 please identify yourself for the record
5 and provide us with your testimony.

6 MR. MOSER: My name is Douglas
7 Moser. I am the Chief Operating Officer
8 of the Philadelphia Gas Works.

9 COUNCILMAN OH: Thank you very
10 much.

11 MR. MOSER: Good afternoon,
12 Chairman Oh and members of the Committee.
13 Again, my name is Douglas Moser. I'm the
14 Executive Vice President and Chief
15 Operating Officer of the Philadelphia Gas
16 Works. I would like to thank you for
17 inviting PGW to testify regarding
18 Resolution No. 150255, which authorizes
19 City Council's Committee on Global
20 Opportunities and Creative/Innovative
21 Economy to hold hearings in order to
22 explore Liquefied Natural Gas export
23 opportunities for Philadelphia.

24 PGW has maintained and operated
25 LNG facilities in the City of

STREHLOW & ASSOCIATES, INC.
(215) 504-4622

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2 Philadelphia since 1969. PGW's LNG
3 facilities include an LNG liquefaction
4 plant, three LNG storage tanks, LNG
5 vaporization, and LNG truck-loading
6 facilities. These facilities have a
7 combined storage capacity of
8 approximately 4.3 billion cubic feet, or
9 more than 50 million gallons of liquid,
10 and the ability to liquify up to 16
11 million cubic feet per day, or 1.5 to 2
12 Bcf, billion cubic feet, per year.

13 The following background
14 information will be helpful in order to
15 understand why PGW originally constructed
16 its LNG facilities. PGW's natural gas
17 supply is delivered to the City of
18 Philadelphia on a daily basis through
19 interstate pipelines. Most days of the
20 year, the pipelines have enough space or
21 capacity to meet Philadelphia's needs,
22 but there is not enough pipeline capacity
23 on the coldest days to deliver all that
24 is needed. As a result, PGW needed a
25 solution to provide gas supply during

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2 these coldest days. At the time, there
3 were two options. One, contract with
4 interstate pipelines for more capacity
5 and pipelines to Philadelphia at a
6 substantial cost to the ratepayers or,
7 two, construct an LNG facility which
8 could liquify and store gas within the
9 City of Philadelphia. PGW determined
10 that the solution was to construct an LNG
11 storage facility instead of a pipeline
12 expansion. LNG was perfectly suited to
13 meet Philadelphia's needs because of the
14 lower costs and the ability to store and
15 access LNG locally.

16 I should note that natural gas
17 in its liquid form takes up much less
18 storage space than in the gaseous state.

19 Back in 1969 when PGW's LNG
20 facilities were first constructed, the
21 City of Philadelphia needed much more gas
22 on its coldest days than is required
23 today. As originally constructed, PGW's
24 liquefying capabilities were more than 26
25 million cubic feet per day. As PGW's

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2 customers began using less gas over the
3 years, mostly due to conservation and the
4 installation of energy-efficient
5 appliances, the demand for gas has
6 decreased. This has resulted in some
7 underutilized LNG storage space.

8 Approximately ten years ago, PGW replaced
9 the original aging liquefier with the
10 current smaller, more efficient system of
11 only 16 million cubic feet per day.

12 Even though customer demand has
13 decreased, PGW still must produce enough
14 LNG for the coldest possible winters.

15 More recently, the company has realized
16 that some of the LNG can be sold after
17 the gas supply needs of Philadelphia are
18 met. In 2013, PGW developed a pilot LNG
19 liquid sales program in which it began
20 selling available LNG inventory by
21 tractor-trailer loads into the market for
22 high-horsepower engine applications such
23 as long-haul trucking, natural gas
24 drilling rigs, and hydraulic fracturing
25 pumps. PGW has sold approximately 1.7

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2 billion cubic feet of LNG from 2013 to
3 the present time, and the margin
4 generated from the new LNG sales is
5 approximately \$8 million.

6 PGW is currently exploring an
7 expansion of its LNG facilities and
8 developing expansion options for
9 submission to the PFMC Board and the
10 Philadelphia Gas Commission in its next
11 capital budget. Demand for LNG has
12 increased within the Mid-Atlantic region
13 and beyond due in part to the abundant
14 supply of natural gas. Additionally, new
15 LNG markets are emerging, such as the
16 maritime market to supply LNG for fuel
17 for both tugboats and ships, industrial
18 conversions, and electric generation
19 peaking facilities.

20 PGW is looking forward to a
21 continuing dialogue with the leadership
22 of the City regarding the matters which
23 we have discussed today. And I am
24 available to respond to any questions you
25 may have, and thank you for your time and

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2 consideration.

3 COUNCILMAN OH: All right.

4 Thank you very much for your testimony.

5 Councilwoman, do you have any
6 questions?

7 COUNCILWOMAN BROWN: Yes.

8 Good afternoon.

9 MR. MOSER: Good afternoon.

10 COUNCILWOMAN BROWN:

11 Increasingly we hear from members of the
12 business community the fair criticism, I
13 believe, that we are not as a city doing
14 a good job in preparing our young people
15 in our public schools and some might
16 argue charter schools for pipelines of
17 employment opportunity.

18 What, if any, relationships,
19 partnerships, training programs are there
20 in place between PGW and the Philadelphia
21 School District as we anticipate
22 fast-forwarding this dialogue, the
23 possibility of engaging liquid natural
24 gas opportunities?

25 MR. MOSER: We've been

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2 partnering with some of the local
3 communities or some of the local schools,
4 especially with the high technical jobs,
5 some of the instrumentation jobs, the
6 pipeline infrastructure type of jobs, the
7 welders, the pipeline mechanics.

8 COUNCILWOMAN BROWN: So talk
9 about that in greater detail. Give me
10 some detail. What schools? Are they
11 high schools? Are they public schools?
12 Are they -- some detail.

13 MR. MOSER: It's a combination
14 of both. It's the high schools. It's
15 the public schools. It's the trade
16 schools. So we've been partnering with
17 all of them.

18 COUNCILWOMAN BROWN: And how
19 does that happen? Does PGW initiate that
20 partnership or is it a department at the
21 School District that's strictly in the
22 business of facilitating these type of
23 partnerships?

24 MR. MOSER: To date it's been
25 PGW reaching out to the schools to be

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2 able to build that pipeline, to build
3 that relationship with the schools.

4 COUNCILWOMAN BROWN: How old is
5 the program?

6 MR. MOSER: It's about three
7 years old right now.

8 COUNCILWOMAN BROWN: And so can
9 you speak to the yield or to the outcomes
10 as a result of the training?

11 MR. MOSER: I don't know the
12 exact numbers. I don't have that. I can
13 provide that, if you would like. We have
14 been able to hire some and transition
15 them from the schools into our programs.
16 We've been doing a couple different
17 things. Some are intern programs we've
18 been able to implement.

19 COUNCILWOMAN BROWN: Oh,
20 really?

21 MR. MOSER: Yes.

22 COUNCILWOMAN BROWN: Can you
23 talk about that in greater detail. Is it
24 a summer internship program experience,
25 is that new?

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2 MR. MOSER: Again, that's about
3 two years old also. So we've been able
4 to try and reach out into the community,
5 try and develop that relationship. We
6 recognized a few years ago that we were
7 going to have some turnover within our
8 own workforce, and we needed to be able
9 to bridge that gap, get the next
10 generation into our organization and get
11 the trained highly skilled individuals.
12 So that's been our outreach up till now.

13 COUNCILWOMAN BROWN: Can you
14 provide that detail to the Chair of the
15 Committee, as my office is anticipating
16 dialogue with the Greater Philadelphia
17 Chamber along the line of what is the
18 City already doing to create a bench of
19 potential employees for these new
20 economies.

21 MR. MOSER: Yes, ma'am. We can
22 do that.

23 COUNCILWOMAN BROWN: Thank you.
24 Thank you, Mr. Chairman.

25 COUNCILMAN OH: All right.

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2 Thank you very much.

3 Currently we had received
4 testimony from PGW regarding the amount
5 of LNG that is trucked out or distributed
6 per year, and do you know the number?

7 MR. MOSER: That was the --

8 COUNCILMAN OH: I'll say that I
9 recollect it was 6 million Bcf.

10 MR. MOSER: I don't -- it was
11 in my testimony, but I cannot remember it
12 off the top of my head.

13 About 1.7 Bcf up till now.

14 COUNCILMAN OH: I'm sorry?

15 MR. MOSER: 1.7 Bcf.

16 COUNCILMAN OH: Yes. So that
17 is a different number than I recall the
18 testimony, but I'll check my notes on
19 that.

20 MR. MOSER: Well, I think one
21 of the things that gets confusing over
22 time is, sometimes different individuals
23 use different numbers, Bcf versus gallons
24 versus truck loads versus dekatherms. So
25 just make sure you're consistent in the

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2 units, so to speak.

3 COUNCILMAN OH: Yeah. I'm
4 consistent in the units.

5 MR. MOSER: Okay.

6 COUNCILMAN OH: But, no. Thank
7 you for pointing that out.

8 And are you aware of the
9 testimony of Penn Energy regarding
10 exporting LNG?

11 MR. MOSER: I do not recall
12 that one, no, sir.

13 COUNCILMAN OH: So in summary,
14 Penn Energy through the testimony of
15 Franc James testified that they were
16 interested in investing privately \$2.1
17 billion and that they would develop a
18 pipeline for the Marcellus to PGW and
19 export by tanker ships LNG overseas.
20 Their testimony was that they believed
21 that they would have a market, and the
22 tolling fee to PGW would be in the area
23 of \$150 million per year, looking at a
24 15- to 20-year contract.

25 What's your reaction to that

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2 testimony?

3 MR. MOSER: I do recognize
4 that. It's actually Penn America.

5 COUNCILMAN OH: I'm sorry.
6 They changed their name.

7 MR. MOSER: Yes.

8 COUNCILMAN OH: No. I'm sorry.
9 You're right. It's Penn America. You
10 are correct. I'm sorry.

11 MR. MOSER: It used to be Into
12 America, now it's Penn America.

13 COUNCILMAN OH: Yes.

14 MR. MOSER: We've been in
15 dialogue with them. It's a great
16 opportunity. There's a lot that has to
17 occur for that to occur, for that to
18 happen. I think that would be the -- but
19 I think we're evaluating that
20 opportunity. That type of revenue stream
21 is a great opportunity for the City of
22 Philadelphia, and we're taking a very
23 serious look.

24 COUNCILMAN OH: When you say
25 that you're evaluating that proposal,

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2 that opportunity, how are you evaluating?

3 Who are you speaking with in terms of the
4 evaluation?

5 MR. MOSER: Well, I don't think
6 we're evaluating that proposal. Any
7 situation like that would have to go
8 through an RFP process with the City in
9 conjunction with the City and with the
10 Philadelphia Gas Works.

11 COUNCILMAN OH: Let me clarify.
12 I understand what you're saying. I'm not
13 saying that you're evaluating the
14 proposal in that manner, but just the
15 concept of is it possible to achieve what
16 they're proposing, not their own
17 proposal, not them in particular, but how
18 are you determining whether that is even
19 remotely possible or not?

20 MR. MOSER: I think you break
21 it down into the components of what would
22 go into a project like that. First you
23 would have to get the supply, get a
24 supplier to commit to that type of
25 supply, build the infrastructure. We do

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2 not currently have the pipeline
3 infrastructure to be able to deliver the
4 volumes of gas that something like that
5 would require. So you would have to
6 build that infrastructure. The next step
7 would be to build the actual liquefaction
8 capability within the system into our
9 storage tanks, build then the dockage and
10 loading arms to load a ship, and then
11 traverse the ships in and out of the
12 Delaware River to the eventual market
13 that it will be supplying.

14 So those are the components,
15 and I think each individual component are
16 doable components, putting a whole
17 project together like that, as were Penn
18 America is coming into fore to say that
19 they could do a project like that.

20 COUNCILMAN OH: One of the
21 issues that I think has arisen after the
22 testimony is that both the Mayor and
23 Council engaged consultants and we also
24 have local experts who -- when I say
25 "experts," are known to our City and to

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2 our City government as persons involved
3 with natural gas in one way or the other.
4 And they raised not doubts, but certainly
5 raised some questions about the
6 feasibility or practicality of doing a
7 project like that.

8 In my conversations, I've had
9 the opportunity to speak with companies
10 that actually do develop and export LNG,
11 and so I had a different perspective.
12 Have you had the opportunity or will you
13 have the opportunity to in addition, if
14 you're going to talk to consultants, talk
15 to consultants who actually deal in the
16 type of project that Penn America Energy
17 is contemplating or talk to companies
18 that actually are in the process of doing
19 a project of that scale?

20 MR. MOSER: Well, I think both.
21 We have had the opportunity to talk to
22 some consultants and our own internal
23 experts. We have a lot of expertise
24 within our own organization for a project
25 like this. We will also reach out to

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2 other consultants out there that have
3 done major projects like this. We are
4 members of both AGA and other
5 organizations where we have the
6 opportunity to discuss these types of
7 issues with other companies, not
8 divulging trade secrets or anything, but
9 being able to discuss in general how
10 project management works and how the
11 different components of a project would
12 go down. So we have been reaching out to
13 those type of individuals and we will
14 continue to reach out to them.

15 COUNCILMAN OH: All right.

16 Thank you very much, and thank you for
17 coming today.

18 MR. MOSER: Thank you.

19 COUNCILMAN OH: Clerk, would
20 you call the next witness.

21 THE CLERK: Jason French, Our
22 Energy Moment and Cheniere Energy; Susan
23 Oliver, WPX Energy; Lutitia Clipper,
24 Clipper Enterprises; David Kailbourne,
25 REV LNG, Liberty Energy Trust Group.

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2 (Witnesses approached witness
3 table.)

4 COUNCILMAN OH: Thank you very
5 much for coming. As you approach the
6 table, you realize that there are three
7 seats and three microphones and four of
8 you. So what I'll ask is that the first
9 three come up and would the fourth person
10 also come up, but sit in one of the black
11 chairs, and we're just going to go kind
12 of from your left to your right with
13 testimony in the order called. So let's
14 start with Jason French and then Susan
15 Oliver and I believe it was Luititia --
16 Clerk, help me here.

17 THE CLERK: Clipper.

18 COUNCILMAN OH: Clipper. And
19 David Kailbourne.

20 Thank you for coming. Because
21 we are recording this testimony, would
22 you please identify yourself and then
23 provide your testimony, and we'll hold
24 questions until all four have testified.
25 Thank you.

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2 MR. FRENCH: My name is Jason
3 French. I am a spokesperson for the Our
4 Energy Moment Coalition, also the
5 Director of Government and Public Affairs
6 for Cheniere Energy based out of Houston,
7 Texas, where I'm coming from today to
8 visit with you.

9 Thank you, Chairman Oh, other
10 members of the Council, members of the
11 staff, and other esteemed guests here
12 today. I commend you for taking a
13 leadership on this issue to explore LNG
14 exports, the benefits of those exports,
15 and the potential for LNG exports in the
16 City of Philadelphia and in this region.

17 The Our Energy Moment Coalition
18 was founded in late 2013. It is a
19 broad-based coalition made up of
20 businesses, civic associations, elected
21 officials that focuses on being a
22 clearinghouse for factual information
23 about the LNG export issue and providing
24 stakeholders around the country with
25 information about the benefits and the

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2 challenges that come along with LNG
3 exports. We felt that in the industry,
4 there was a need for that messaging, and
5 that has been the role that we've served
6 over the last couple years.

7 Here in Pennsylvania we are
8 proud to call several major organizations
9 and companies members of the Our Energy
10 Moment Coalition, including the
11 Pennsylvania Chamber, the World Trade
12 Center of Greater Philadelphia, a number
13 of engineering firms that have operations
14 here in the City and around the state, as
15 well as academic institutions from around
16 the state. So it is a broad-based
17 coalition.

18 The name Our Energy Moment
19 refers to this unique moment in time that
20 we find ourselves in as a nation, where we
21 have realized the abundant supply of
22 natural gas and hydrocarbons beneath our
23 feet and the economic opportunities that
24 those have created. It has truly been
25 nothing short of a revolution in the

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2 energy industry, when just a decade ago
3 we were the poster child of global energy
4 consumption. Today we truly are poised
5 to become a global energy superpower, and
6 that's what the name refers to, Our
7 Energy Moment. We believe it's a moment
8 that we can capitalize on.

9 Perhaps no region, city, and
10 state have realized our energy moment
11 more than the area where we sit,
12 Philadelphia and the State of
13 Pennsylvania. In Pennsylvania, natural
14 gas production over the seven-year period
15 between 2005 and 2012 increased an
16 astonishing 1,200 percent. The state and
17 region that was once dependent on
18 pipelines from the Gulf Coast is now
19 having -- pipelines are now being
20 reversed with capacity to take 10 to 12
21 billion cubic feet of gas away from the
22 State of Pennsylvania through those
23 pipelines.

24 The state now consumes about 12
25 billion cubic feet less per day than they

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2 produce. Again, that's that our energy
3 moment and opportunity to capitalize, and
4 that's what our organization talks about.

5 Now, everyone in this room is
6 familiar with the energy industry in
7 Pennsylvania. I just want to touch
8 briefly on the idea of exports, kind of
9 from a 50,000 foot level. I know in the
10 symposium this evening we can get into
11 more detail and I can address any
12 specific questions you might have.

13 Obviously it's a story of
14 global demand and supply here in the
15 United States. Over the next 20 years,
16 we anticipate demand increasing in the
17 world marketplace by 37 billion cubic
18 feet per day for LNG. On the flip side
19 of that, in the United States, studies
20 have shown that we will as a nation be
21 producing -- or are capable of producing
22 29 billion cubic feet a day more gas than
23 we can use. Again, that's the
24 opportunity to use some of that excess
25 capacity to meet that global demand in

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2 the marketplace.

3 A study by the firm Nera,
4 N-E-R-A, last year, which was a followup
5 to the federal government study of the
6 issue of exports, found that over the
7 next 20 years, there will be \$86 billion
8 of economic activity created in the
9 United States as a result of -- as a
10 direct result of LNG exports, 450,000
11 jobs nationally, 2.4 million jobs
12 attributed to increased production of
13 natural gas that would be as a result of
14 exports.

15 There are regional benefits to
16 exports in a general way as well, and
17 I'll talk to you very quickly about some
18 specifics. But regionally in a general
19 capacity, natural gas production, that
20 additional 12 billion cubic feet that the
21 state is not consuming that it produces,
22 Cheniere, for example, and other
23 companies along the Gulf Coast will
24 assuredly take significant capacity out
25 of the State of Pennsylvania, and that's

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2 creating jobs in the exploration and
3 production sectors, also creating for
4 those service companies here in the
5 state.

6 But also the story of LNG
7 facilities that are currently being built
8 along the Gulf Coast have benefited
9 manufacturers across the country. For
10 Cheniere's facility alone at Sabine Pass,
11 we are purchasing billions of dollars of
12 manufactured equipment from 54
13 manufacturers in 17 states. A number of
14 those are here in Pennsylvania. Air
15 Products in Wilkes-Barre, Pennsylvania is
16 providing heat exchangers for three or
17 four of the major plants, and these are
18 significant investments in each of these
19 heat exchangers. So the manufacturing
20 industry across the state and across the
21 region are benefiting as well.

22 Now, each LNG export project is
23 different. As you know, Mr. Chairman,
24 Cheniere Energy is doing two very
25 significant projects along the Gulf

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2 Coast. Our Sabine Pass plant is being
3 built -- will actually start producing
4 LNG this year at a cost of \$20 billion on
5 the coast of Louisiana. To put that in
6 perspective, that is arguably the largest
7 single industrial investment in the
8 history of the United States. To put a
9 little local flavor to put it into
10 perspective, what we're building in a
11 rural area on the coast of Louisiana is
12 the equivalent of 30 and a half Lincoln
13 Financial fields. It is a significant,
14 significant capital investment.

15 We are currently employing
16 roughly 4,500 people on site. The
17 construction phase will last five to
18 seven years. This project, as in any LNG
19 export project of any size of
20 significance, is creating significant
21 jobs for those in the building and
22 construction trades. Forty-five hundred
23 people currently involved in construction
24 will have about 600 new employees to
25 operate the facility when it's fully

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2 complete, and that facility alone will
3 export 4 billion cubic feet of natural
4 gas per day.

5 We also anticipate beginning
6 construction just outside of Corpus
7 Christi, Texas on a second facility.

8 That project, as we jokingly say, will
9 only cost \$14 billion. We'll export 2.1
10 billion cubic feet of natural gas per day
11 and will employ about between 3,000 and
12 3,500 people during peak construction,
13 again with about a five-year construction
14 window.

15 Each project is different, and
16 projects on the scale of Cheniere's, it's
17 important to note, require significant
18 land. We have at both of our sites
19 nearly 1,000 acres under our control.
20 But there are a number of other
21 configurations of LNG export facilities.
22 There are a number of other processes
23 used other than the one that Cheniere is
24 using that are smaller, scalable, and
25 could, for the sites that I know that the

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2 Council is looking at, could provide a
3 solution for what the Council is looking
4 for.

5 While all the projects are
6 different and maybe the scale of
7 Cheniere's projects could present
8 challenges with the land constraints,
9 it's important to note that the benefits
10 of building an LNG export facility can be
11 very real. The Corpus Christi facility
12 that I mentioned, for example, we've done
13 it -- we've commissioned an economic
14 study that showed in the region around
15 Corpus Christi for the five-year
16 construction period alone, we're going to
17 create \$5.2 billion of secondary economic
18 benefits. So the businesses that support
19 our construction, the hotels, the
20 restaurants, \$5.2 billion of economic
21 activity from one construction project.

22 You also create opportunities
23 for local manufacturers. Here in this
24 area, one could imagine that if an export
25 facility was built at either of the

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2 sites, at either of the PGW sites, the
3 companies like Tioga Pipe, Sandmeyer
4 Steel, Mercer Gasket, Philadelphia Pipe
5 Bending, Windle Mechanical Solutions, all
6 are companies that provide services that
7 potentially could go into a facility, an
8 LNG export facility, in the Greater
9 Philadelphia area and could potentially
10 benefit.

11 Finally, and I know I'm
12 probably going a bit over time, but I do
13 just want to share with you as we look
14 at -- as companies look at siting these
15 major export facilities, there are a
16 number of factors that come into play,
17 many of which Philadelphia would be
18 looked at in a positive light. You need
19 the land. So obviously we've touched on
20 that constraint. You need deep water.
21 That is present. Infrastructure, with
22 pipeline infrastructure, with the
23 roadways, obviously being a
24 transportation hub that Philadelphia is,
25 it is well poised from an infrastructure

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2 standpoint to potentially become the
3 energy hub that you desire to be.

4 And then, finally, one of the
5 things that the companies look at, quite
6 frankly, is political and community will
7 to move forward on one of those
8 facilities, and much of that lies on the
9 companies' shoulders who are involved in
10 these projects to explain to the
11 communities, to the elected officials
12 issues of safety, environmental
13 responsibility, those type of things, and
14 that really does lay on the companies
15 that develop these facilities.

16 And then the last thing I will
17 say -- I try to paint a very positive
18 picture of all the things that we can do
19 in LNG exports, but it should be noted
20 that the barrier to entry and to
21 constructing an LNG export facility is
22 substantial. I can only speak directly
23 from Cheniere's experience. I think it
24 runs fairly consistent across the
25 industry. Simply to make our permits to

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2 the Federal Energy Regulatory Commission,
3 we had to invest almost \$100 million in
4 front-end engineering and design work.

5 To provide and check all the boxes that
6 were required by the federal regulators,
7 you spend about \$100 million before you
8 even hit submit on that application. So
9 it is a significant barrier of entry.

10 And the regulatory challenges at the
11 federal level should not be overlooked
12 either. On our Corpus Christi facility,
13 we've been engaged in the regulatory
14 process to have that facility permitted
15 for over 38 months at this point and
16 still have not had final approval,
17 although we anticipate it very shortly.

18 So I hope I've given you a
19 little bit of an overview of what the
20 Coalition does, what our experience has
21 been in building some of the larger
22 export facilities, and I'll be happy to
23 take any questions you might have. And I
24 apologize for going over my time.

25 COUNCILMAN OH: No. Thank you

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2 very much.

3 I want to first recognize that
4 Councilman Brian O'Neill, our Minority
5 Leader, has joined us, and to state that
6 we are going through the panel before
7 taking questions. And so, Susan Oliver,
8 would you state your name and give us
9 your testimony.

10 MS. OLIVER: I'm Susan Oliver.
11 I'm the Manager of Community and
12 Government Relations for WPX Energy.
13 Good afternoon and thank you, Chairman Oh
14 and members of the Committee and the City
15 Council, for the opportunity to add some
16 comments for the record regarding
17 liquefied natural gas, or LNG, in the
18 City of Philadelphia.

19 I'm Susan Oliver, Manager of
20 Community and Government Relations for
21 WPX Energy here in the Marcellus Basin.
22 In addition to my responsibilities with
23 WPX, I'm also involved with the
24 Associated Petroleum Industries of
25 Pennsylvania, the American Petroleum

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2 Institute, and I'm past Chair of the Gas
3 Use Committee for the Marcellus Shale
4 Coalition. And my testimony today is
5 focused on sharing information from API
6 and other industry, government, and
7 research sources as it relates to LNG
8 exporting and LNG opportunities.

9 If you watch the news or follow
10 social media chatter, it would not
11 surprise you to find daily conversations
12 about energy development here in the
13 United States and around the world. Many
14 focus on LNG development, trade, and
15 usage.

16 As stated by the U.S. Chamber
17 of Commerce Institute for 21st Century
18 Energy, our nation is at the center of
19 one of the most profound changes in the
20 global oil and natural gas industry since
21 its inception. Thanks to American
22 Innovation and ingenuity, increased
23 domestic energy production has reduced
24 our dependence on energy imports to a
25 degree that would have seemed

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2 unimaginable just a few decades ago.

3 This concept of an energy
4 revolution is a view that is shared by
5 many organizations outside the oil and
6 natural gas industry and outside the
7 United States.

8 According to the U.S.
9 Department of Energy's Energy Information
10 Agency, commonly referred to as EIA, in
11 2012 our nation surpassed Russia as the
12 world's energy superpower. That
13 continues today, as reflected in EIA's
14 recently released data points, which say
15 the United States remains the world's top
16 producer of petroleum and natural gas
17 hydrocarbons in 2014. U.S. hydrocarbon
18 production continues to exceed both
19 Russia and Saudi Arabia, the second and
20 third largest producers, respectively.
21 With the increase in U.S. production, the
22 United States produced nearly twice the
23 petroleum and natural gas hydrocarbons
24 than Saudi Arabia did in 2014.

25 Total dry gas production in the

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2 United States increased by 35 percent
3 from 2005 to 2013, with natural gas
4 consumption rising from 23 to 28 percent
5 in the United States. Production growth
6 resulted largely from the development of
7 shale gas resources in the lower 48
8 states, which includes natural gas from
9 tight oil formations. More than half of
10 the total increase in shale gas
11 production over the period comes from the
12 Haynesville and the Marcellus formations.

13 With the increased production,
14 according to EIA, gross exports of
15 natural gas are expected to increase and
16 gross imports decline. The United States
17 becomes a net exporter of natural gas in
18 2017; this is driven by LNG exports;
19 increased pipeline exports to Mexico; and
20 reduced imports from Canada.

21 Our changing LNG trade
22 relationship with Trinidad and Tobago,
23 the largest oil and gas producer in the
24 Caribbean and the world's sixth largest
25 LNG exporter, exemplifies the global

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2 impact of our growing natural gas
3 industry. In October 2012, in the
4 inaugural meeting of the Global Gas
5 Council, Dr. Neil Parsan, the Ambassador
6 of Trinidad and Tobago to the United
7 States, stated that in 2005 more than 80
8 percent of Trinidad and Tobago's LNG
9 exports went to the United States. In
10 2012, this number dramatically decreased
11 to 19 percent.

12 According to the EIA, U.S.
13 imports of energy declined 30 percent of
14 total energy consumption in 2005, down 13
15 percent in 2013. The EIA expects this
16 decline in net energy imports to continue
17 at a slower rate, with energy imports and
18 exports coming into balance around 2028.
19 The forecast for LNG gross imports is
20 projected to average 0.2 Bcf's in 2015
21 and 2016.

22 On the other hand, EIA also
23 projects that in 2035 to 2040, energy
24 exports will account for about 23 percent
25 of total annual U.S. energy production,

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2 with LNG gross exports increasing an
3 average of 0.04 Bcf in 2014 to over 0.79
4 Bcf in 2016.

5 LNG has safely been handled for
6 several decades since the first LNG
7 facility was built in West Virginia in
8 1912, and vessels have made more than
9 100,000 voyages without major accidents
10 or safety problems. Additionally, the
11 LNG industry is highly regulated both by
12 the Federal Energy Regulatory Commission,
13 or FERC, the Department of
14 Transportation, the Coast Guard, Homeland
15 Security, and other agencies to ensure
16 vessels, facilities, and personnel
17 provide safe operations.

18 So why is this even important
19 to Philadelphia? As of 2012,
20 unconventional oil and natural gas
21 development supported 2.1 million jobs,
22 and it's projected to support 3.9 million
23 jobs in 2025.

24 The export of liquefied natural
25 gas represents one of the most promising

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2 economic opportunities for the shale
3 revolution.

4 As noted on the House of
5 Representatives' Energy and Commerce
6 Committee website, bipartisan leaders
7 continue to support LNG exporting, and
8 there are quotes from Bill Richardson and
9 from former Secretary Spencer Abraham --
10 both were former U.S. Secretaries of
11 Energy -- about the importance of LNG
12 exporting.

13 According to FERC, there are
14 110 LNG facilities operating in the
15 United States performing a variety of
16 services, and FERC currently regulates 24
17 of the operational facilities. Some
18 export natural gas, some provide natural
19 gas to the interstate pipeline system or
20 local distribution companies, and others
21 store natural gas for peak demand
22 periods. As of 2014 -- or as of April
23 14th, 2015, FERC has approved six LNG
24 export terminals, and 18 proposed export
25 terminals still await a decision.

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2 The opportunities associated
3 with LNG exporting go beyond the
4 gas-producing states, and as previously
5 testified by others here in the
6 Committee, there are billions of dollars
7 to be raised both in direct association
8 with LNG and with significant associated
9 facilities and opportunities in the
10 manufacturing arena. And so Philadelphia
11 should be concerned about the exports and
12 the export opportunities.

13 But additionally, the added
14 beauty of LNG is, it's not related to
15 only exporting. It's a field that can be
16 utilized right here in the Commonwealth.
17 Our own Governor, Tom Wolf, stated on
18 March 5th, 2015 when he reversed the
19 state income tax increase on LNG, One of
20 my goals is to promote and develop a
21 comprehensive energy portfolio for
22 Pennsylvania that supports clean energy
23 alternatives to imported petroleum.
24 Liquefied natural gas is not only a
25 cleaner alternative to diesel, generating

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2 lower pollutant emissions when used to
3 fuel vehicles, but it's also produced
4 here in Pennsylvania from abundant
5 resources.

6 The Philadelphia Inquirer
7 reported that the Marcellus production
8 rose 28 percent in 2014, even with a
9 reduced rig count, and this, according to
10 the EIA, accounts for 36 percent of the
11 U.S. overall natural gas production.

12 So there shouldn't be a concern
13 whether or not production of natural gas
14 in this area can support any development
15 within LNG facilities or LNG operations,
16 because according to the Marcellus
17 Coalition -- or the Marcellus Shale
18 Coalition, there are a variety of
19 opportunities, and the region can expect
20 positive gains with job creation across
21 all industries, along with dollars paid
22 by the impact fee and investments by both
23 natural gas companies, supporting
24 industries and others.

25 As Philadelphia explores the

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2 development of LNG, don't forget others
3 are doing the same thing. LNG use is
4 being developed, used, expanded, and
5 explored globally, nationally, and here
6 in Pennsylvania. Philadelphia needs to
7 look beyond the routine and seek out
8 opportunities that take advantage of
9 abundant supply of natural gas and the
10 City's unique location along the eastern
11 seaboard, with access to inland waterways
12 and the tremendous intermodal system.

13 I'd like to turn the microphone
14 over to an industry colleague who will
15 share with you information on an LNG
16 initiative that's taking place on the
17 other side of the Commonwealth that does
18 have implications and potential for
19 Philadelphia.

20 COUNCILMAN OH: Thank you very
21 much.

22 Would you please identify
23 yourself for the record and provide us
24 with your testimony.

25 DR. CLIPPER: Yes. My name is

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2 Dr. Lutitia Clipper. I'm the CEO of
3 Clipper Enterprises.

4 My name is Dr. Lutitia Clipper,
5 CEO of Clipper Enterprises. It is my
6 privilege to address this Committee as a
7 person committed to being a wise and
8 responsible steward of our God-given
9 natural resources and preserving our
10 environment. Thank you to Councilman Oh
11 and our other esteemed members of this
12 Committee. Greetings.

13 This commitment that I have is
14 forged from over 30 years of experience
15 in the energy industry in the operations
16 area, starting with pipeline design for a
17 major utility in Pennsylvania, sales
18 force management, market planning, and
19 business development in traditional and
20 non-traditional market segments,
21 including natural gas vehicle business
22 development in over 22 counties of
23 Southwestern Pennsylvania; having secured
24 a Pennsylvania grant to introduce the
25 first dedicated natural gas transit bus

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2 in Pennsylvania; also serving on Geneva
3 College Engineering Advisory Board and
4 CMU Energy and Public Policy Advisory
5 Board. I was featured on a special
6 interview series for Larry King Live, "In
7 View," and I also coordinated the 2014
8 LNG Marine Forum Pittsburgh in
9 collaboration with Clean Fuels/Clean
10 Rivers and the Port of Pittsburgh.

11 My testimony before this
12 Council will be centered on activities
13 related to the use of natural gas for
14 vehicles on inland waterways of
15 Southwestern Pennsylvania regarding the
16 development of a project to convert or
17 retrofit those vehicles currently using
18 diesel propulsion to the clean emission
19 for compliant and economically advantaged
20 natural gas in the form of LNG in the
21 upper Ohio region in the heart of
22 Marcellus Shale and Utica Shale play
23 locations.

24 My colleague outlined the
25 global implications for the increased use

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2 of LNG and its importance in the
3 positioning of our gas-rich region as a
4 major global energy resource.

5 Natural Gas Vehicle America
6 documents characterizes the off-road,
7 marine, and railroad as three demanding
8 high-horsepower segments leveraging the
9 benefits of natural gas to significantly
10 reduce fuel costs up to 50 percent and to
11 minimize their environmental impact in
12 order to comply with government-mandated
13 air quality regulations. Because of
14 these benefits, emerging natural gas
15 high-horsepower applications in these
16 segments are generating a multitude of
17 well-funded pilot demonstration projects
18 and a growing number of commercial
19 deployments.

20 The U.S. transportation segment
21 is responsible for two-thirds of all
22 petroleum use. While on-road vehicles
23 represent approximately 80 percent of
24 this consumption, high-horsepower
25 applications consume more than 30 billion

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2 gallons of diesel fuel per year as noted
3 by the LNG primarily used in these
4 applications to displace diesel fuel due
5 to its energy density and ease of
6 storage, which is necessary for these
7 high-fuel use transportation
8 applications.

9 Where we're focusing today from
10 my particular interest in marine, the
11 marine sector is of particular interest
12 for this testimony. It's noted by
13 NGV America as an accelerated adopter of
14 LNG-fueled cargo vessels for tugboats,
15 ferries, and cruise ships and is expected
16 before the North America Emissions
17 Control Area regulations, which require
18 ships operating within 200 miles of the
19 U.S. coast to reduce sulfur emissions,
20 and that was taking effect January of
21 2015. Additional air quality regulations
22 will take effect that are designed to
23 reduce nitrogen oxide emissions in 2016.
24 This is an additional environmental
25 driver that will support market growth as

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2 marine transportation transitions from
3 dirty diesel and marine oil. With
4 natural gas being inherently clean, as
5 well as costing up to 50 percent less
6 than marine fuels, the transition to LNG
7 is an attractive choice.

8 For example, an inland waterway
9 tow boat pushing a fully loaded barge
10 consumes 7,000 gallons of fuel in a
11 single day. Since vessels remain in
12 service for decades, operators have more
13 time to recover the higher incremental
14 cost of LNG engines and refrigerated
15 storage to make the economic case to
16 embrace natural gas as a maritime fuel.
17 Here are some of North American
18 developments that are using natural gas
19 in liquefied state:

20 Crowley Maritime has placed an
21 order for two LNG ConRo ships for the
22 U.S. and Puerto Rico trade.

23 BC Ferries issued an RFP to
24 build three intermediate class dual-fuel
25 ferries.

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2 The U.S. Navy is funding a
3 study on the feasibility of converting a
4 subset of USACE fleet to LNG.

5 There are several others here,
6 but I'll go on for needs of time.

7 The railroad is also another
8 user of this high horsepower. There are
9 56 -- I'm sorry; 561 freight railroads
10 that are currently operating in the U.S.
11 today. The top seven Class 1 railroads,
12 which are line-haul freight, consume over
13 3.6 billion gallons of diesel fuel each
14 year, which translates to 10 million
15 gallons per day, representing 7 percent
16 of all diesel consumed in the United
17 States. It is estimated that an LNG
18 locomotive costs 1 million more than its
19 diesel counterpart. Because trains are
20 kept in service for relatively long
21 periods of time and consume high amounts
22 of fuel, the economics for LNG can be
23 good solutions for this industry as well.
24 And the price spread between the fuels
25 allows for a relatively quick payback of

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2 the incremental cost to implement the LNG
3 locomotives, and it translates to a
4 tremendous long-term savings. The
5 savings can be seriously impacting the
6 bottom line for rail operations because
7 the industry's fuel costs represent an
8 average of 23 percent of its total
9 operating cost. And here are examples of
10 some North American LNG and CNG
11 locomotive activity. I'll just name a
12 few.

13 CSC and GE will pilot a test
14 LNG technology for locomotives.

15 Indiana Harbor, the Chicago
16 switch carrier, is converting 31
17 locomotives to CNG.

18 LA MetroLink is studying this
19 option.

20 And from personal information
21 that I've gathered from a project I just
22 completed, I know Norfolk Southern is
23 involved in another project.

24 The Clean Fuels/Clean Rivers
25 natural gas study approach coalesced

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2 around an interactive educational
3 awareness and informational gathering
4 business, industry, and regulator
5 consortium of public-private partners
6 interested in expanding the potential of
7 natural gas as a replacement for diesel
8 fuel to the often overlooked inland
9 waterway system, which encompasses about
10 12,000 miles of navigable waters.

11 According to the American
12 Waterway Operators, there are
13 approximately 3,900 tow boats and
14 tugboats in operation, with 112 police in
15 our inland waterways on a daily basis in
16 the Mississippi and Gulf Coast systems.
17 These boats represent a significant
18 untapped customer source for the natural
19 gas industry. Our project looked at
20 several key expectations for the project
21 which were identified using natural gas
22 in place of diesel fuel. They were:

23 Air quality improvement or
24 compliance of current and pending EPA
25 regulations for barge fleets on the

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2 river; improved vehicle maintenance
3 schedule with natural gas versus diesel
4 fuel due to cleaner running engines with
5 extended life of the engines; better
6 compliance with the strict Coast Guard
7 requirements through elimination of fuel
8 spill issues using natural gas versus
9 diesel; control of fuel costs with
10 natural gas versus diesel fuel since
11 current diesel pricing is volatile and
12 the Marcellus Shale play has improved the
13 supply with offerings of stability of the
14 natural gas.

15 Clean Fuels/Clean Rivers framed
16 a study that encompassed West Virginia in
17 the Morgantown area through Pennsylvania
18 down the Ohio River. The concept study
19 sponsored by one of the natural gas
20 distribution companies with one of the
21 largest service territories and customer
22 bases in the state examined vessel types
23 or fleets of interest and fuel usage and
24 exhaust emissions, nexus points of
25 communications, and reviewed the current

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2 projects worldwide. They determined also
3 available engine technology for retrofit
4 and new construction and evaluated the
5 shipboard and shore bunkering
6 requirements.

7 After initial discussions, some
8 of the objectives that were found
9 included that there are mutual benefits,
10 although there are areas of differences
11 that occurred. There's two cultures
12 here, and there are things that were
13 learned, some of which included that the
14 natural gas companies saw that this
15 particular market segment had a new gas
16 user that was found with a transportation
17 contract that had a year-round constant
18 load profile. There was also, from the
19 tugboat or tow boat operators, an
20 opportunity for a secure fuel domestic
21 source and a cleaner operation that
22 provided lower maintenance.

23 American Natural Gas Alliance,
24 ANGA, acknowledges the increased use of
25 LNG is being put to use in growing

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2 numbers of applications. Individual
3 regulators and potential customers are
4 asking a number of questions as they
5 examine this new affordable, available,
6 and clean resource. We know that
7 especially in our natural gas-rich
8 Commonwealth of Pennsylvania, natural gas
9 companies are looking to increase market
10 share of the transportation energy market
11 for all the right reasons, our energy
12 security. As over the highway CNG and
13 LNG fueling stations are increasing and
14 liquefaction infrastructure is emerging,
15 the larger users of natural gas,
16 sometimes referred to as these
17 high-horsepower applications, especially
18 marines, have become more attractive.
19 After review of the high operating hours
20 and relatively consistent fueling
21 requirement and a need for fuel with
22 cleaner emissions, LNG is a natural fit.
23 Natural gas offers marine vessels a
24 cleaner burning alternative with
25 significant reductions in particulate

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2 matter and greenhouse gas emissions.

3 Who uses LNG? Some of them
4 include Frito-Lay, UPS, Ryder, and Waste
5 Management are just a few to fuel their
6 trucks and fleets. We see BNSF, CSX,
7 Norfolk Southern, Union Pacific as far as
8 the rail is concerned. We notice that
9 there are a number of them that are using
10 natural gas in LNG state for onshore and
11 offshore.

12 Why is this important to
13 Philadelphia? How does this benefit
14 Philadelphia? The listing that we have
15 noted of LNG users is impressive. The
16 applications and benefits continue to
17 increase and improve as the LNG
18 infrastructure improves. The purpose of
19 my testimony today is to reinforce the
20 positive opportunity and point of
21 commonality between our project in
22 Southwestern Pennsylvania and the
23 interest that your intended use for LNG
24 and the Port of Philadelphia highlights.
25 In addition to export the maritime

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2 application and the wide array of
3 manufacturing, petrochemical and other
4 industry opportunities in the Greater
5 Philadelphia region that will benefit
6 from introductions, use, and
7 accessibility to LNG. Since the Port of
8 Philadelphia's physical challenges
9 remain, the Chesapeake and Delaware River
10 systems provide an excellent inland
11 waterway marine application as a bridge
12 strategy or interim solution for the
13 utilization of the LNG resource as this
14 issue is resolved. The close proximity
15 of the extensive industrial and
16 manufacturing segment, petrochemical, and
17 heavy equipment applications provide
18 additional strategic opportunities for
19 LNG use.

20 This is an answer to the
21 question of the benefit of LNG. Whether
22 it is a "green over green" effect for the
23 operator that is able to satisfy an
24 environmental compliance requirement
25 while experiencing an economic fuel cost

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2 benefit or a manufacturing operation that
3 experiences an operational cost saving,
4 the bottom line with natural gas or LNG
5 is the solution is providing or keeping
6 jobs, saving the environment, and keeping
7 money in the pocket of the operators and
8 the business owners.

9 COUNCILMAN OH: Well, thank you
10 very much.

11 David Kailbourne, would you
12 please state your name and give us your
13 testimony.

14 MR. KAILBOURNE: Certainly. My
15 name is David Kailbourne.

16 COUNCILMAN OH: And I'll ask
17 you to pull the microphone closer, not
18 the best technology in here.

19 MR. KAILBOURNE: No problem.
20 My name is David Kailbourne. I'm the CEO
21 of Revolutionary Liquefied Natural Gas.

22 Good afternoon. My name is
23 David Kailbourne, as I said, and I serve
24 as the Chief Executive Officer of REV
25 LNG, which is headquartered and based in

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2 Potter County, specifically Ulysses,
3 Pennsylvania. I appreciate the
4 opportunity to share our company's vision
5 for liquefied natural gas development and
6 would like to thank Councilman Oh, as
7 well as the other members of City Council
8 for recognizing the significant
9 opportunities that this market presents
10 in the future.

11 Our company actually has two
12 companies that are associated with
13 liquefied natural gas. REV Hoopes
14 Trucking was actually the first company
15 in the State of Pennsylvania to ever
16 transition its traditional 18-wheeler
17 diesel truck fleet to liquefied natural
18 gas starting three years ago, in February
19 of 2012. My business partner, who is the
20 President of that division, Preston
21 Hoopes, actually won the Pennsylvania
22 2012 DEP State Governor's Award for his
23 efforts on environmental improvement by
24 switching to liquefied natural gas.

25 Our company that I'm currently

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2 the CEO of, REV LNG, is a well-to-wheel
3 distributor of LNG. So very much like a
4 traditional propane distributor, we
5 distribute liquefied natural gas
6 currently in the eastern half of the
7 United States today, all of it being done
8 from our headquarters up in Ulysses,
9 Pennsylvania and with our southernmost
10 deployment near Birmingham, Alabama to
11 one of the largest chicken poultry
12 operations in the world.

13 We currently run one of the
14 largest LNG truck fleets in the eastern
15 seaboard today. We utilize LNG from
16 places as close as Philadelphia and as
17 far away as Birmingham, Alabama. We
18 believe as we go forward, that the
19 utilization of liquefied natural gas in
20 the Commonwealth has many different
21 benefits. We've obviously talked
22 strongly here today about the ability to
23 export LNG from the Philadelphia region.
24 There's no question, as you previously
25 talked about in the opening comments, LNG

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2 certainly can be exported from the
3 Philadelphia region. I'm not going to be
4 here to discuss whether that is the
5 correct solution at this time. What our
6 company really is based on and what we
7 see our vision in the Philadelphia region
8 is supplying that fuel in smaller-scale
9 opportunities to the Commonwealth
10 especially in utilization of
11 high-horsepower applications, as
12 Dr. Clipper has recently talked about.
13 It is a perfect application for a
14 displacement to heavy fuel oil to No. 2
15 oil, 6 oil, which is extremely
16 environmentally unfriendly.

17 LNG is the cleanest burning of
18 all fossil fuels. Depending if you're
19 using it in a truck engine, depending on
20 what particulate matter or component that
21 you are measuring, it is anywhere from 27
22 to 97 percent more environmentally
23 friendly when burned in an engine.

24 We are actually finishing our
25 permits on two liquefiers, what we call

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2 small-scale liquification facilities.

3 The first one is just west of Scranton,

4 Pennsylvania and the second one will be

5 just south of Pittsburgh. These are

6 small-scale liquefiers that have the

7 ability to produce roughly 50,000 gallons

8 of liquefied natural gas on a daily

9 basis. They are very small scale in

10 size. Very candidly, they take up less

11 than a 400 foot by 400 foot complete

12 disturbance of the property. We believe

13 that the vast majority of this liquid

14 will be used inside of the Commonwealth

15 and it will directly be obviously

16 feedstock gas from the Commonwealth, the

17 gas reserves of that Marcellus. It will

18 employ substantial amounts of people in

19 that region, and it will produce taxes in

20 that region, and that fuel will then be

21 distributed and consumed for the vast

22 majority of it inside of the

23 Commonwealth. So this will improve the

24 economics of distributors, whether you're

25 a traditional grocery store chain that

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2 might use trucking to deliver your
3 products. If you can reduce your fuel
4 bill by a substantial margin as well as
5 improving the air emissions, those trucks
6 and the communities that they operate in,
7 we believe that there's significant
8 benefit to that type of distribution of
9 our product.

10 Our product -- our liquefier,
11 excuse me, the first one in west of
12 Scranton, Pennsylvania actually received
13 an \$800,000 grant from the Department --
14 DEP here in the State of Pennsylvania.
15 That liquefier when you look at it in its
16 displacement to roughly 30,000 gallons of
17 diesel -- we'll make 50,000 gallons of
18 LNG, and that roughly displaces 30,000
19 gallons of diesel, and there's
20 significant environmental benefits from
21 that, but one of the largest ones is
22 actually the improvement in the holistic
23 consumption of water. And what I mean by
24 that is this:

25 If you look at the entire

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2 amount of energy -- or water, excuse me,
3 that is needed to consume -- get a barrel
4 of oil out of the ground and turn it into
5 a gallon of diesel and then you look at
6 that water usage obviously by fracking a
7 well and drilling a well, roughly 6
8 million gallons per each well, and you
9 look at the entire holistic comparison,
10 we will save roughly 1.7 billion gallons
11 of water on an annualized basis in the
12 Commonwealth for the next 20 years.

13 And so we believe that LNG, as
14 well as many of our committee members
15 here have testified today, has different
16 scale obviously. Cheniere and the
17 example that they've done down in the
18 Gulf Coast region, extremely large. We
19 would be looking on the opposite end of
20 that in a smaller, more scale measurable
21 opportunity. But all of these
22 opportunities, whether large or small, is
23 something that we believe if done
24 correctly, incrementally, and safely will
25 benefit the Greater Commonwealth and the

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2 Philadelphia region.

3 Thank you very much.

4 COUNCILMAN OH: All right.

5 Thank you very much for your testimony.

6 Councilwoman, do you have any
7 questions?

8 COUNCILWOMAN BROWN: Yes.

9 Absolutely.

10 Same question I asked the
11 executive with PGW. Do you currently
12 have any partnerships with school
13 districts? And I'm particularly
14 interested in the work that's happening
15 in Texas where given the new
16 opportunities and given the new skill
17 sets that may be required, what are you
18 doing to create a pipeline of potential
19 employees? So that would be question
20 one, and anyone or all of you could
21 answer.

22 And, two, what is the nature of
23 the training? Particularly with our last
24 testifier, Mr. David Kailbourne, you
25 talked about the transition that you've

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2 had in your company. What type of
3 training did you provide for your
4 employees to move into this new world of
5 energy?

6 MR. KAILBOURNE: So we don't
7 operate in Texas right now.

8 COUNCILWOMAN BROWN: No, you
9 don't, but the gentleman next to you
10 does.

11 MR. KAILBOURNE: Correct.
12 Right. From a training point of view
13 obviously, all the technicians that will
14 be working at our plant obviously will
15 have extensive cryogenic training --

16 COUNCILWOMAN BROWN: What kind
17 of training is it called?

18 MR. KAILBOURNE: Cryogenic
19 training.

20 COUNCILWOMAN BROWN: C-R-Y?

21 MR. KAILBOURNE:
22 C-R-Y-O-G-E-N-I-C. LNG is stored in a
23 cryogenic state, which means that gas has
24 been cooled to negative 260 degrees below
25 zero where it transitions from a gas to a

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2 liquid. So its storage is traditionally
3 called cryogenic storage.

4 COUNCILWOMAN BROWN: I see.

5 MR. KAILBOURNE: Very much like
6 nitrogen is used at hospitals today or
7 oxygen, cryogenic storage.

8 And so obviously you have to
9 take safety precautions, and technically
10 you could get a cryogenic burn. So, in
11 essence, like a freezer burn basically.
12 Obviously substantially more severely
13 than that. So we'll reach out as we've
14 done to local community responders, to
15 local hospitals, energy response, that
16 type of complete HAZOP, HAZID on our
17 plant that will go really from our entire
18 facility through the entire emergency
19 response plan.

20 But in general, we have a very
21 small facility compared to traditional
22 liquification plants. Roughly you
23 basically have two technicians working a
24 day shift at 12 hours and then you have
25 two technicians working a night shift at

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2 12 hours. So it's not a massive facility
3 by any means. It's very small, very
4 efficient, very incremental in size.

5 COUNCILWOMAN BROWN: And so can
6 one go from high school to training to
7 your facility?

8 MR. KAILBOURNE: Yes, ma'am.
9 That's absolutely correct. Yeah. We
10 have that ability obviously to -- as we
11 start out, we'll start out with more
12 seasoned senior plant managers with
13 substantial experience in the cryogenic
14 fields and running cryogenic plants, and
15 then we will start to train a talent pool
16 in the area that can be both field
17 technicians to work at the facility,
18 load-out technicians, as well as
19 mechanical technicians in the area --
20 these are very highly specialized pieces
21 of equipment that need training, as well
22 as drivers. The drivers -- LNG is
23 considered a HAZMAT, very much like
24 propane is traveled on the roads today,
25 and those drivers are highly trained. We

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2 can take them right out of, very
3 candidly, high school, take them, they
4 get their experience, their tanker
5 endorsements, and we can bring them
6 through our company and grow them, and it
7 establishes very solid family wage
8 business.

9 COUNCILWOMAN BROWN: Very
10 exciting.

11 Sir.

12 Thank you for that lesson, that
13 science lesson.

14 MR. KAILBOURNE: My pleasure.

15 MR. FRENCH: When building
16 these facilities and particularly
17 building the facilities now in the Gulf
18 Coast where the energy revolution that
19 we've all -- am I close enough to the
20 mike?

21 COUNCILMAN OH: You're good.
22 I'm sorry.

23 MR. FRENCH: With the energy
24 revolution that we've discussed, it's
25 also, particularly along the Gulf Coast

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2 more so than in many regions, bringing
3 new manufacturing plants, new
4 petrochemical plants. There's
5 significant competition for the workforce
6 that is there, and a compelling need upon
7 those of us who are making these
8 significant investments to work to train
9 those locally who could potentially work
10 in our facilities.

11 So one example that we're very
12 proud of at Cheniere in Texas, as you
13 mentioned, which is -- we're building a
14 facility just outside Corpus Christi in
15 an unincorporated area near our town
16 called Portland and Gregory.

17 We have gone in with our own
18 engineering folks, who have created a
19 curriculum, a process technology
20 curriculum, that students in their 11th
21 and 12th grade of high school can begin
22 taking. We've coordinated a partnership
23 between the local school district and a
24 local community college, Del Mar College.
25 We've provided funding on both sides of

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2 that equation, both with the high school
3 district and a \$250,000 grant to the
4 community college. But what it will
5 allow is those juniors and seniors in
6 high school to begin a process technology
7 curriculum that if they then take,
8 admittedly, a fairly aggressive course
9 load, in one year at Del Mar, because of
10 the dual credit they receive while in
11 high school, they can receive the
12 two-year certification in process
13 technology that will allow them to come
14 work in our facility as an entry-level
15 operator.

16 Certainly on the large-scale
17 facilities -- and I'm not as familiar
18 with the smaller facilities, but the
19 operators and the technicians in these
20 facilities are substantially -- these are
21 good-paying jobs. These are good-paying
22 middle-class jobs that with overtime can
23 approach six figures annually. So we do
24 feel both as a responsibility as a
25 corporate citizen in the communities in

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2 Louisiana and Texas where we operate, but
3 also truly because of the competition for
4 workforce in those areas, a compelling
5 need to work on workforce development
6 issues. That's a central part of what we
7 do in the communities where we operate.

8 COUNCILWOMAN BROWN: That's
9 exciting, I would imagine.

10 MR. FRENCH: Yes.

11 COUNCILWOMAN BROWN: Thank you.

12 MS. OLIVER: Similar to what's
13 happening in Texas, when the natural gas
14 industry arrived in the Marcellus Shale
15 Basin, we began immediately a workforce
16 initiative, because we understand that
17 this is a long-term relationship between
18 the industry and the people of
19 Pennsylvania, and we have an obligation
20 to help train the newer generation to
21 take over the industry, because we're
22 looking at anywhere from 50 to 100 years
23 of production, minimum.

24 And so taking a look at what's
25 been happening through all the different

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2 companies involved in the Marcellus Shale
3 Coalition and in other trade associations
4 and just being here in the Marcellus
5 Basin, the industry has been involved
6 with training in elementary school
7 levels, even down to kindergarten, and
8 through high school, college, vo-tech
9 schools, science fairs. There's a
10 specialized junior achievement program
11 with the State of Pennsylvania Junior
12 Achievement system that members within
13 the industry have gone into various
14 schools. We're engaged with the iPraxis
15 program here in the City of Philadelphia.

16 COUNCILWOMAN BROWN: Is that
17 right?

18 MS. OLIVER: Yeah. I had the
19 pleasure of going into a 6th grade class
20 here in one of the public schools and
21 talking about drilling rigs, and we did
22 little projects, and the kids actually
23 designed their own drilling rigs and then
24 did a presentation within the classroom.
25 It was really cool. And they got excited

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2 about the science opportunity, because it
3 was in a science class and --

4 COUNCILWOMAN BROWN: Could you
5 stop right there on that particular
6 example. And so seeing the excitement
7 that comes from young people and having
8 an opportunity to tell them that that
9 excitement can actually lead to a J-O-B
10 six years from now, has thought or vision
11 been given to actually creating a
12 curriculum that sort of captures those
13 young people who are interested and holds
14 their hand through to the end, where they
15 can then go into on-the-job training that
16 leads to a real job?

17 MS. OLIVER: Well, various
18 industry members have reached out and
19 they have adopted schools and have gotten
20 involved at their own level, company
21 level. And so that's happening in a lot
22 of different neighborhoods.

23 COUNCILWOMAN BROWN: In
24 Philadelphia?

25 MS. OLIVER: Well, throughout

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2 Pennsylvania. I know here with the
3 iPraxis program and with Junior
4 Achievement, various companies have been
5 involved with students who are interested
6 in it. And as an industry, we're also
7 heavily involved in promoting the STEM
8 and the STEAM initiative.

9 COUNCILWOMAN BROWN:

10 Absolutely.

11 MS. OLIVER: Because that's

12 right in our bailiwick.

13 COUNCILWOMAN BROWN: That's the

14 future.

15 MS. OLIVER: Yeah. So we work

16 with kids on that. And outside of the
17 school and outside of the kids, we work
18 with communities too, because the
19 communities where we operate have to
20 understand what's going on. So you have
21 to educate them just on the processes and
22 everything else of what to expect and
23 then what happens in the long term when
24 the facility stays there. So your first
25 responder community gets trained, your

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2 neighborhood, your school district gets
3 briefed. So you do a lot of those joint
4 kind of long-term --

5 COUNCILWOMAN BROWN: Strategic
6 rollout.

7 MS. OLIVER: -- long-range
8 planning and going through the "what if"
9 scenarios too.

10 COUNCILWOMAN BROWN: Well, so
11 that's the segue to my next question.
12 Given the fears, and in some cases
13 legitimate when you see what New York
14 state opted not to do around this issue,
15 what provisions are you putting in place
16 to educate about the potential
17 environmental ups and downs that come
18 with this new world?

19 MS. OLIVER: Well, here in the
20 State of Pennsylvania, the Department of
21 Environmental Protection has pretty
22 stringent guidelines for the industry.

23 COUNCILWOMAN BROWN: Okay.

24 MS. OLIVER: And the key goes
25 into how you actually construct your

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2 well. And so we've been following those
3 guidelines as an industry and working
4 together with the DEP and with community
5 involvement, especially under Governor
6 Wolf now. He has several different
7 committees that involve technical experts
8 and people from outside the industry to
9 look at how are we operating and what are
10 we doing. But our primary focus is
11 safety and protection of the environment
12 in everything we do, and it starts with
13 the construction of the well itself and
14 the multiple layers of cement and steel
15 that we use to protect the water aquifer.

16 COUNCILWOMAN BROWN: Is there
17 any simulation of that or what you just
18 described in the Philadelphia area?

19 MS. OLIVER: Well, there is no
20 drilling, of course. It's right close
21 by.

22 COUNCILWOMAN BROWN: No, no,
23 no. So for sure no drilling, but like
24 you have the Franklin Institute, which
25 shows in a very teacher-driven way how

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2 persons can learn from a particular
3 experience. Is there some connection
4 that your group may have with an
5 institution in the City where one can
6 actually see and learn all of what you
7 just described? Because you live and
8 breathe that every day, but there are
9 many of us who are interested and really
10 only hear a lot of the fears that come
11 with this new world that don't have a
12 clue, but we want to learn.

13 MS. OLIVER: Right. And
14 there's various members within the
15 Marcellus Shale Coalition and other trade
16 associations that do go into
17 organizations and do presentations.
18 There was a meeting today where a member
19 of the Marcellus Shale Coalition is
20 meeting with a Chamber of Commerce to do
21 those and to help educate them and show
22 them what exactly does the industry do to
23 protect the environment and to protect
24 the communities where you're operating.

25 COUNCILWOMAN BROWN: Very good.

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2 DR. CLIPPER: I think I would
3 like to add that one of the members who
4 is here from this location who was
5 involved in that meeting was involved in
6 one of our forums, in the forum that we
7 had last fall in Southwestern
8 Pennsylvania.

9 COUNCILWOMAN BROWN: Oh,
10 Southwest Pennsylvania. Okay.

11 DR. CLIPPER: Right. But she
12 is from here. And so she would be a
13 person that we could provide contact
14 information --

15 COUNCILWOMAN BROWN: Please.

16 DR. CLIPPER: -- to you.

17 COUNCILWOMAN BROWN: If you
18 could forward that to the Chair. We
19 would be happy to have that.

20 MS. OLIVER: Because she's
21 heavily involved here in the City and she
22 knows a lot about everything that's going
23 on with who is engaged where.

24 COUNCILWOMAN BROWN: Very well.

25 Well, thank you for your

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2 testimony. Thank you all very much.

3 Thank you, Mr. Chairman.

4 COUNCILMAN OH: Thank you very
5 much, Councilwoman.

6 Let me start with this
7 question: When we go outside of
8 Philadelphia, particularly when we get
9 into the rest of the world, what are the
10 attitudes? Are they similar to ours
11 regarding natural gas? Are they
12 different from ours?

13 I'll give an example. What's
14 going on in Japan or in Europe around
15 nuclear energy, there's a lot of fear
16 around nuclear energy. We seem to have
17 certain fears in the U.S. Are they
18 similar? Does everyone have these fears?
19 Are they different? How would you
20 describe the global situation right now?

21 MS. OLIVER: Well, looking at
22 just what's in the news, because that's a
23 great way of kind of gauging what's
24 happening around the world because you
25 can't go and visit everybody, and what's

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2 happening on social media, there is a lot
3 of chatter and a lot of discussion about
4 is it safe. And within the industries,
5 operators and producers around the world,
6 one of the efforts is to help educate
7 folks, again, on exactly what we do, how
8 we do it, the safety measures that are in
9 place, and the protocols that are in
10 place to respond to the whole drilling
11 process and then the production process
12 to alleviate those fears, because the
13 fear of the unknown, of course, we know
14 everyone has that, and so we help through
15 education to alleviate those so they do
16 understand exactly what happens.

17 COUNCILMAN OH: Okay.

18 MR. FRENCH: So this is
19 referring to more on the production side,
20 but obviously on the LNG side and the
21 commodity of actually LNG efforts
22 manufactured, I think it's important to
23 note to the Councilwoman's question also
24 that, as I mentioned in my testimony,
25 there's a barrier for any company or any

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2 organization that's going to be part of
3 one of these LNG facilities to educate
4 the surrounding members about what LNG
5 is. It is -- it's methane. It's natural
6 gas that's been liquefied, cryogenically
7 liquefied, but it comes with a whole host
8 of issues. It actually can be handled
9 very safely. It can be handled, but
10 there's a perception because there's so
11 much energy on one of those ships. A
12 large cargo of LNG has more gas
13 equivalent on it than the State of
14 Pennsylvania will use in a day. So you
15 have -- but there are some basic
16 scientific facts about LNG. LNG itself
17 in its liquid form won't burn. We all
18 remember from elementary school science
19 class you have to have oxygen. It's pure
20 methane, so it won't burn in its liquid
21 state. It will burn when it revaporizes.
22 That's why we're all in the gas business.
23 But it's only in a very set ratio, 5 to
24 15 percent gas to air. It won't explode
25 in an unconfined environment. If it's

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2 ignited, it will burn back to the source.

3 I believe it was Susan who
4 mentioned in her testimony there have
5 been actually somewhere between 135,000
6 and 150,000 voyages of LNG cargoes to
7 date. There's never been a drop of LNG
8 hit a waterway around the world. That's
9 including in 2003 when a U.S. submarine
10 surfaced underneath an LNG cargo ship,
11 penetrating the outer hull, but it didn't
12 penetrate the inner hull and the cargo
13 maintained its integrity.

14 There is a good safety story to
15 tell around the LNG industry, but because
16 it is new, particularly in the lower 48
17 states of the United States, it is
18 something that has almost a shroud of
19 mystery around it, and I think it is
20 incumbent upon any company that would
21 participate in an LNG project in this
22 area or in any community -- one example,
23 one of the things that we do to tell you
24 how much of a heavy lift it can be in
25 assuring the community of the safety of

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2 these projects, we've gone into the
3 communities around Corpus Christi. The
4 nearest home is about 1.2 miles from our
5 facility in Corpus Christi. We've gone
6 into all of the surrounding cities and
7 actually almost through -- they're called
8 meet and greets, but we go in and buy
9 sandwiches and soft drinks and we go into
10 people's living room and ask them to
11 invite 20 of their neighbors. And we go
12 in, and we'll spend -- I've spent 30
13 minutes speaking at one. I've spent two
14 hours and 30 minutes speaking at one,
15 because we will answer every safety
16 question, and it almost -- you almost
17 have to approach it at that level,
18 because this is a new industry. It is
19 oil and gas related, but it's new to the
20 communities where you would be looking to
21 site one of these facilities, and it
22 would be incumbent upon everyone involved
23 in the process to participate in that
24 education effort.

25 COUNCILWOMAN BROWN: Yes. Yes.

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2 COUNCILMAN OH: Let me ask you
3 this, then, because Boston is a city very
4 similar to Philadelphia that has LNG
5 going on for quite a long time. And
6 could you tell us a little bit about
7 Boston and what they're doing and kind
8 of -- I'm looking at what similarities or
9 dissimilarities there are between what
10 Philadelphia might do and what Boston is
11 doing.

12 MR. FRENCH: I personally am
13 not very familiar with the details of
14 Boston. I know that on the import side,
15 the facility that is in Boston has been a
16 point of controversy among political
17 leaders in the area, certain members of
18 Congress who have continued. Even since
19 the facility has been built and
20 operational, it has been a point of
21 contention.

22 When I said LNG is new,
23 obviously there are LNG facilities such
24 as that, import facilities, peak-shaving
25 facilities. When I say it's new, though,

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2 I'm referencing the export facilities on
3 the size and scope of what we're building
4 along the U.S. Gulf Coast, but beyond
5 that, I can't speak to the specifics of
6 Boston.

7 MR. KAILBOURNE: I can talk a
8 little bit about that about Boston. A
9 lot of people forget that 20 percent of
10 the Greater New England area's energy
11 comes from liquefied natural gas in
12 storage and that it's been revaporized.
13 The idea is, in essence, that
14 traditionally the natural gas through the
15 pipelines started in the Gulf of Mexico,
16 traveled up the eastern seaboard, and by
17 the time it got to New England, in
18 essence, there's not enough pressure or
19 capacity because everybody has kind of
20 stuck a straw in the pipe, if you will,
21 right? And so everybody up in New
22 England doesn't -- on a very cold demand
23 day -- that's what FERC regulates, the
24 Federal Energy Regulatory Commission, is
25 those type of peak-shaving utilities.

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2 Their job is to take natural gas off the
3 line all summer long, liquefy it. And
4 why you liquefy it, as Doug Moser had
5 previously said, it shrinks or condenses
6 623 times its natural state. So you have
7 a very large amount of energy that has
8 been shrunk down as a liquid, and then as
9 you regasify it, turn it back to a gas
10 from that liquid, you have the ability
11 just to stick it in the pipeline and use
12 it as natural gas. So on peak demand
13 days, days where it's extremely cold in
14 the New England area, which it often
15 does, everyone turns up their thermostat,
16 and that utility is there to provide
17 service, and that's how LNG -- as
18 peak-shaving has really started in the
19 United States.

20 Boston does have an import
21 terminal and it's owned by a very large
22 conglomerate, and they get a lot of their
23 LNG via ship from the Trinidad-Tobago
24 market down in the Caribbean and they
25 bring it up there.

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2 It's important to note in, I
3 think -- Susan had talked about
4 there's -- I believe in Boston -- and I
5 can provide you with the exact number,
6 but it's roughly 60,000 voyages have been
7 made since the early 1960s from the
8 Atlantic, from the Caribbean up to Boston
9 in tankers, large ships, in all types of
10 bad weather, hurricanes, northeastern,
11 and there's never been a single
12 environmental incident. So it's been
13 done. It's been proven. It is an
14 educational process, as the Council has
15 figured out, and everybody has a duty to
16 do it. But the LNG industry as a whole,
17 especially over the last 30 years from
18 1975, has the safest industrial history
19 of any type of fuel such as 2 oil, 6 oil
20 or diesel.

21 MS. OLIVER: There's also an
22 additional thing with Boston that I've
23 seen in discussions on social media.
24 They have different provisions on what
25 happens when LNG is transported through

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2 the city. So they shut down certain
3 areas. They shut down tunnels and things
4 like that. So I think how it's processed
5 through the city and travels through the
6 city is something different and they have
7 a different view. And so we would hope
8 that Philadelphia would learn more about
9 the nature of LNG and the safety
10 provisions that are taken so that such
11 extreme measures wouldn't be happening
12 here in the City.

13 MR. KAILBOURNE: I think it's
14 really important to note LNG in the City
15 of Philadelphia has been here for an
16 awfully long time. At Port Richmond
17 there are two 25 million gallon LNG
18 tanks. At Passyunk there's another tank
19 that has been used successfully, safely,
20 efficiently for decades by PGW. There
21 have been hundreds, if not -- Doug can
22 probably tell you -- thousands of tanker
23 trucks that have gone through the City of
24 Philadelphia, just like propane tanker
25 trucks travel the roads all over the

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2 eastern half of the United States today
3 very safely, very efficiently. So it's
4 been in the City for decades and done
5 safely and efficiently.

6 COUNCILMAN OH: Are there
7 opportunities for Philadelphia to send
8 its LNG to Boston or to New England?

9 MR. KAILBOURNE: I think
10 there's opportunities across the board in
11 many different types of variations of
12 that to send it to different parts. I
13 will tell you that one of the -- LNG has
14 to be transported in a cryogenic vessel.
15 Traditionally today that's in a tanker
16 truck or in a ship and soon probably to
17 be by rail in a few years. But as you
18 take it further from its production
19 source, there is more costs associated
20 because of the transportation charges.

21 So, in essence, we believe and
22 at our company consuming LNG as close to
23 the source is the most economic manner to
24 transport and to consume LNG. But
25 certainly that is an option, sure.

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2 MS. OLIVER: New England does
3 have that challenge where they are energy
4 starved and they did have some challenges
5 meeting their peak demand periods over
6 the winter season. One of the problems
7 they had is, they did have -- the New
8 England governors did want to put in and
9 supported the concept of having a
10 pipeline come from more energy-abundant
11 locations such as the Marcellus up to New
12 England to feed them, especially up in
13 Maine, and unfortunately there's been a
14 lot of opposition to a pipeline
15 development. So a great alternative is
16 LNG and shipping it through different
17 avenues to get it up there to help the
18 people of New England that need the
19 energy.

20 MR. KAILBOURNE: I believe
21 there's 13 or 14 LDCs, local distribution
22 companies, in the New England area, and
23 so those outer portions of Vermont and
24 Massachusetts and Maine, and they
25 basically have in their pipeline system

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2 the same, just a microcosm of it. They
3 don't have enough gas in the peak demand
4 season. So the Everett Terminal in
5 Boston, I believe, has four truck
6 load-out facilities. In essence, it
7 takes roughly an hour to load a 10,000
8 gallon LNG tanker. They have four of
9 them that run 24 hours a day, and there
10 are literally thousands of trucks that
11 load in Everett and take it across the
12 New England area, and it's been done for
13 decades, to make sure that those people
14 have enough energy in the cold winter. I
15 can tell you that those trucks come south
16 here, even all the way to down to North
17 Carolina, to supply fuel to other
18 utilities and other industrial,
19 commercial, and private organizations
20 that are in need of that type of energy.

21 COUNCILMAN OH: All right.

22 Well, thank you very much. I'm sure we'd
23 have a million more questions, but we are
24 limited in time. So we thank you very
25 much, and I'll ask the Clerk to call the

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2 next witness.

3 THE CLERK: Will Freeman,
4 AstorFreeman.

5 COUNCILMAN OH: While we wait
6 for this witness, let me just recognize
7 that Councilman Brian O'Neill had joined
8 us. I think I did mention that, and that
9 Councilwoman will have to go to another 3
10 o'clock appointment. And thank you for
11 being here.

12 (Witness approached witness
13 table.)

14 COUNCILMAN OH: Would you
15 please state your name for the record and
16 provide your testimony to the Committee.

17 MR. FREEMAN: Yes. Good
18 afternoon, Councilman Oh. My name is
19 William Freeman. I am the Chief
20 Executive Officer of FreemanAstor, a
21 little bit backwards.

22 I'm here today. I have
23 extensive background in the industry. My
24 colleagues in the industry, we work
25 together. I used to work for Chesapeake

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2 Energy, worked extensively in business
3 development with compressed natural gas
4 vehicles and infrastructure throughout
5 the Commonwealth. I'm also a past chair
6 also of the Marcellus Shale Coalition
7 where we were also responsible for
8 promoting the end use of natural gas in
9 the markets of petrochemicals,
10 transportation, also export.

11 So this is dear to me because I
12 spend -- this is my second time having a
13 hearing here and I have a special passion
14 for Pennsylvania, especially in the
15 Philadelphia area just because of the
16 potential there.

17 I'm not going to be too long.
18 I think that -- I think everyone has
19 pretty much spoken everything that I've
20 written down, and so I'm not going to be
21 too long with it, but just some parts --
22 what I do in my business is that I
23 actually work domestically and globally
24 working at -- I raise equity for energy
25 projects around the world. I just

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2 recently completed a project looking at
3 gas demands and methane usage in Lao PDR,
4 Southeast Asia, and also working in
5 different -- working in some areas in
6 India looking at investors for FDI here,
7 for United States here for oil and gas
8 energy projects.

9 So I think from a global
10 perspective, I think that we are -- we
11 don't realize how competitive we are and
12 how much -- we're not aware of how much
13 that the natural gas supply worldwide is
14 going to grow as these larger continents
15 like India, Brazil, China are growing out
16 of -- coming out of poverty. As they
17 come out of poverty, they're going to use
18 a lot more energy, and we're not aware of
19 how much -- they're not going to come out
20 in thousands. They're coming out in
21 millions, and they're coming out from
22 poverty to middle class, which then they
23 want to use more plastics, washing
24 machines, transportation.

25 The LNG market is seeing a

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2 surge worldwide in markets with
3 maintaining its position -- and we are
4 maintaining our positions being the
5 world's largest gas producer in 2014, as
6 Susan said earlier, for the third year in
7 a row. It's been reported that its
8 technical or culpable gas resources are
9 boosted to a record 2,515 trillion cubic
10 feet. The U.S. government says for the
11 first time the nation will become a net
12 exporter within 15 years as the shale
13 boom bolsters crude oil production, but
14 also the U.S. energy exports will exceed
15 imports from 2029 to 2032 and then from
16 2037 to 2040.

17 The Energy Information
18 Administration in its Annual Outlook, the
19 agency raised its forecast for 2025 to
20 2040 while cutting energy demand
21 estimates for the same years. Future gas
22 demands will outpace demand growth --
23 will outpace oil demand growth by more
24 than double year on year with annual gas
25 and then currently around 3,500 billion

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2 cubic feet and rising to 4,500 billion
3 cubic feet by 2025 and over 5,000 billion
4 cubic feet by 2035. Cutbacks in the
5 future supply based on decisions made now
6 will see a tightening in gas markets from
7 2019 to 2020.

8 Domestic gas production is
9 anticipated to reach 937 billion cubic
10 meters in 2040, up from 687.6 billion
11 cubic meters in 2013, according to EIA's
12 Annual Energy Outlook in 2013. This will
13 make the U.S. self-sufficient in gas and
14 provide a healthier surplus for export.

15 We talked about the terminals.
16 I'm just going to just kind of go past it
17 because they've said a lot of it. But I
18 will skip down to the petrochemical
19 markets where we look at here in our area
20 and we talk about just the petrochemical
21 market in general, which is a huge
22 by-product of feedstock that we use from
23 natural gas.

24 Between 2014 to 2018, U.S.
25 petrochemical capacity expansion projects

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2 are projected to increase domestic demand
3 for ethane by nearly 600,000 barrels a
4 day and propane by nearly 200,000 barrels
5 a day. The growing demand is in response
6 to the growing hydrocarbon gas liquids
7 and favorable petrochemical feedstock
8 prices in the United States relative to
9 the international market.

10 In the petrochemical industry,
11 U.S. -- the petrochemical industry uses
12 hydrocarbon feedstocks such as ethane and
13 propane to create plastics, fibers,
14 resins, and a whole wide range of other
15 consumers and industrial materials.
16 Ethylene cracker plants most commonly
17 processed were ethane or ethylene and the
18 most important compound they use in
19 manufacturing plastics and other
20 industrial materials. For example, Dow
21 Jones Company claims to have reduced
22 their energy consumption by 38 percent
23 and has plans to further increase their
24 energy efficiency. The chemical industry
25 as a whole has also been becoming more

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2 efficient in regards to energy.

3 According to the International Council of
4 Chemical Associations, producers in the
5 United States are now twice as energy
6 efficient as they were in 1974 at
7 producing chemicals. And, you know, as
8 we know, Dow Jones Chemicals is here in
9 Philadelphia.

10 We can talk a little bit about
11 bunkering, and I think Dr. Clipper talked
12 a lot about the bunkering with the ECA,
13 the entry control areas. Right now in
14 the LNG bunkering, there are around 8,000
15 seaports located around 200 countries.
16 Of these, 46 ports are LNG hopefuls and a
17 mere 15 open in general LNG bunkers in
18 business today.

19 For example, in the United
20 States, Port Fourchon, Louisiana USA has
21 made the news recently for hosting USA's
22 first LNG bunkering operation. Port
23 Fourchon is the largest offshore supply
24 base in the USA servicing over 90 percent
25 of the Gulf of Mexico's deep water and

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2 oil production --

3 COURT STENOGRAPHER: I'm sorry.

4 Can you slow down. You're reading too
5 fast.

6 MR. FREEMAN: Oh, you're
7 typing. I do apologize.

8 Let me repeat that. So Port
9 Fourchon is the largest offshore supply
10 base in the USA servicing over 90 percent
11 of Gulf of Mexico's deep water oil
12 production, with over 600 platforms and a
13 40 mile radius. A little surprise that
14 the New Orleans-based Harvey Gulf decided
15 that dedicated roads led to static LNG
16 bunkering terminals to service its
17 growing fleet of Enviro LNG dual-fuel
18 offshore support vessels in Port
19 Fourchon.

20 And I'll stop right there to
21 say -- to go back to Philadelphia is,
22 I've been working slowly with Moran
23 tugboats. I've worked with the Port of
24 Philadelphia, been talking with them in
25 regards to LNG maritime facilities. I've

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2 talked to -- we've had brief
3 conversations with PGW in looking at --
4 and the reason I bring these up is
5 because when you look at our markets, if
6 we were able to take a look at what we
7 could offer the Philadelphia markets, as
8 we see the Port of Philadelphia dredging
9 5 more feet, what would be an advantage
10 for us looking where the markets are
11 going, where the LNG is, where we have an
12 abundance of LNG here in Pennsylvania
13 especially on the ports. If we could
14 use, for example, Moran to be a tugboat
15 that would actually refuel these ships
16 that would come in on LNG. I've talked
17 with them. They are very interested in
18 the project. They have the money on
19 their own, and there's also outside
20 investors that I've been talking to that
21 will be interested in looking at bringing
22 in like an LNG -- kind of like a
23 refueling area if there are space in the
24 port area, that that could be an actual
25 place where you can have a whole LNG

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2 refueling facility, not only for trucks
3 but also for maritime projects. This
4 also will increase jobs here on the port,
5 especially when you look at the workforce
6 here, unemployment there in that area.

7 I think also as Dr. Clipper and
8 the rest -- most of my colleagues have
9 lauded also is that you would increase
10 also usage for trucking for
11 petrochemicals, like Braskem on the
12 ports. You can increase these areas by
13 using the LNG in those areas that would
14 also broaden the utilization also in
15 power generation.

16 So I think that there is a lot
17 of activity that's happening right now.
18 Geopolitically I think you see a lot of
19 changes. To answer your question, I did
20 look up real quick, Japan right now is --
21 they just passed approval for four new
22 nuclear plants. So their LNG imports
23 probably will soften over time, but you
24 also see a huge increase right now of
25 Africa, Australia, Singapore as having

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2 LNG import facilities looking for
3 exports.

4 So I think we are in a really
5 competitive state right now as we look.
6 I think Philadelphia has a great
7 opportunity to partake in those things.
8 The only thing I would say is that if we
9 don't take advantage and see where we fit
10 globally, I'm just afraid if we don't
11 take advantage of where we are now and
12 that what's going to happen is when these
13 gas prices tighten and the supply
14 tightens, we're going to be left outside,
15 and I would like to see that we can be
16 inside of this whole loop that's
17 happening right now.

18 Thank you very much.

19 COUNCILMAN OH: All right.

20 Thank you very much.

21 Timing-wise, to your knowledge,
22 I mean, basically as was testified
23 before, there's other applications for
24 export license going on. There's other
25 facilities. There's global activity.

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2 Could you give us a sense of what type
3 of -- how much time, what timeframe
4 should the City of Philadelphia be
5 working with to try to figure out what
6 we're doing?

7 MR. FREEMAN: I think your
8 timeframe should have started a couple of
9 years ago and you should be looking now
10 and for the next couple years. As you're
11 drudging, as you're completing, there
12 should be already looking at projects
13 already to start looking at, especially
14 for the LNG exports, looking at the
15 maritime for refuelers. That should be
16 already happening.

17 The time windows are really
18 short, I think, and I think now -- I
19 think people are beginning to look now
20 just because of you look at Russia, you
21 look at Saudi Arabia, you look at
22 everything. So everybody is scrambling
23 right now trying to find gas, and I think
24 we're in a good position. We have it.

25 So I think to answer your

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2 question, I think we need to be looking
3 now. We need to start preparing it and
4 start to plan now.

5 COUNCILMAN OH: Given that
6 there's some other projects going on; for
7 example, Philadelphia is developing
8 Southport around shipping and exporting,
9 importing, and in addition right now with
10 the Global Cities Initiative that is
11 going on with Brookings and other
12 entities -- I was at a briefing where
13 Brookings did a study of ten metropolitan
14 areas. We were one of the metropolitan
15 areas, and we were identified as an
16 export city, but we were ranked tenth out
17 of the ten. And their projection or
18 their analysis was that if we would move
19 from ten to five, get into the middle of
20 the pack and -- easier said than done,
21 understood, but if we could get to the
22 middle of the pack, they said that would
23 be about 37,000 new jobs in five years,
24 provided that we could do that.

25 Are there conflicts given our

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2 waterways and everything else between all
3 these different types of uses, projects,
4 or can they all fit in Philadelphia on
5 our river with the land that we have
6 available?

7 MR. FREEMAN: I can only
8 speak -- I've talked to the Port of
9 Philadelphia, and I think one of the
10 challenges is some of your ports and how
11 the ships come in, and that's one of the
12 biggest issues they talked about. And
13 some of them are a little -- they can
14 just back straight in, I guess, when they
15 come in.

16 One of the other issues is one
17 of your bridges that kind of keeps larger
18 ships from coming in. I think that from
19 my perspective, I think they can be
20 worked through. I think you have to find
21 what your niche could be, what are not
22 being offered. If you already see
23 overseas they're already, as Dr. Clipper
24 talked earlier, they're already offering
25 a lot of LNG bunker fueling ships like

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2 Toto. There's these larger ships that
3 are already running on LNG. I don't see
4 any of those right now anywhere right now
5 on the eastern seaboard right now in
6 large numbers, and I think when you look
7 at Cove Point, that's going to be the
8 next terminal for LNG export, but I still
9 don't see a lot of reports that talk
10 about the, like she talked about earlier,
11 ferries and boats and tugboats. I think
12 that's a niche where we could immediately
13 take use with the land, with the
14 pipelines that we have that are available
15 here, and PGW with its abundance of gas,
16 that we can actually structure something
17 really strategic and how like beginning
18 this green project on the ports is
19 having -- have LNG trucking, have trains,
20 have the bunkers for the maritime. I
21 think those things could actually move us
22 towards a closer area of getting us now
23 maybe from ten to maybe eight. But other
24 structures, I think those are areas that
25 are beyond what I would understand.

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2 COUNCILMAN OH: The same study
3 that I looked at -- or maybe it was a
4 different study, but I think it was
5 Brookings as well. They projected that
6 the U.S., Canada, Mexico, Japan, Europe
7 make up almost 70 or 75 percent of the
8 world's middle class consumption as of
9 today, but that in 35 years, it's going
10 to be reversed, I suppose if nothing else
11 happens, and 75 percent of the world's
12 middle class consumption will be
13 primarily in China, India and some other
14 countries. But the U.S., Europe, Mexico,
15 Canada, there's going to be 15 percent of
16 the middle class consumption.

17 If that is true, if that
18 projection is true, provided we don't do
19 something different, what is the value of
20 exporting LNG versus the value of
21 importing or exporting consumer goods?

22 MR. FREEMAN: I think you can
23 still -- I think as we see, depending on
24 what's in the reports -- I've seen the
25 same reports that you've seen. I think

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2 it causes us -- the value is, it causes
3 us to also be more creative. Export does
4 not mean necessarily shipping overseas
5 all the time. It can also be within our
6 own United States. And I think that we
7 can be more creative in how we could keep
8 the gas and export in the sense that
9 we -- within the domestic realm that we
10 can still creatively use that gas within
11 there and it still can be from
12 Pennsylvania where we are. We're still a
13 large part of that Atlantic seaboard that
14 we produce the most gas.

15 So I think there's options of
16 creativity as the -- I think we're not
17 going to be -- I don't think that from my
18 perspective, I don't think that we're
19 going to be the largest exporter. I
20 think you still have your competitions
21 with now eastern Africa. They're
22 discovering LNG. You have Australia.

23 So I don't think that we're
24 going to be this worldwide exporter. So
25 I think that it's going to be in

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2 measurements. It's going to help us
3 monetize, but I think there's also areas
4 and projects and things that we have a
5 broad base in North America that we can
6 still be creative and still fulfill those
7 areas within the United States using the
8 LNG.

9 COUNCILMAN OH: Whenever we
10 hear \$150 million a year for 20 years,
11 we're going to jump, of course. We have
12 so many problems that we have to resolve
13 in this City, and we're looking for
14 money. Whether or not exporting LNG is
15 feasible, whether or not there's a
16 reality to it, we have to see, but for
17 some of these other suggestions, what
18 kind of dollars do they involve? What
19 kind of job creation do they involve? Do
20 you have a sense? I know I'm putting you
21 on the spot, but basically from what
22 you've heard, do you get a sense of any
23 of that?

24 MR. FREEMAN: I can't really
25 speak on some of those. I really can't

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2 tell you. I mean, there's so many
3 different projects that could be done.

4 COUNCILMAN OH: There seems to
5 be a lot of interesting investing in
6 projects involving LNG. Is that what you
7 are coming across?

8 MR. FREEMAN: Yeah. What I'm
9 seeing -- right now what I'm dealing with
10 now is more into -- I'm looking at oil
11 and assets. I'm looking at solar
12 projects. I'm looking at certain LNG
13 waste-to-energy projects. And you're
14 looking at those investments. I'm
15 getting most of those from looking at
16 foreign direct investments from overseas.

17 LNG projects I'm looking at
18 specifically. I'm working with someone
19 that's specifically working with LNG
20 fueling as far as for maritime vessels.
21 So on my investments, when I look for
22 investments, I look at a bit vaster
23 markets where they're looking at
24 investments right now.

25 COUNCILMAN OH: Okay. Thank

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2 you very much.

3 MR. FREEMAN: Thank you, sir.

4 COUNCILMAN OH: I will ask the
5 Clerk to call the next panel. Thank you.

6 THE CLERK: Mitchell Bormack,
7 TRC; Josh Hritcko, TRC; Morgan Abele,
8 PULS.

9 (Witnesses approached witness
10 table.)

11 COUNCILMAN OH: Thank you very
12 much for coming to this hearing, and I'll
13 ask you to identify yourself first and
14 then provide us with your testimony, in
15 the order that you were called.

16 MR. BORMACK: Sure. Mitchell
17 Bormack, Vice President with TRC
18 Companies.

19 Good afternoon, Councilman Oh
20 and other honorable Councilmembers of the
21 Global Opportunities and the
22 Creative/Innovative Economy Committee.
23 Thank you for allowing me to testify. I
24 had the honor of presenting testimony to
25 this Committee in February 2013 regarding

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2 Philadelphia's position in the
3 international market. Much of that
4 testimony still holds. I'll refer to
5 some of that testimony and then focus on
6 some of the key aspects of developing LNG
7 and overall energy hub opportunities.

8 As a basis of my testimony for
9 perspective, I am a lifelong
10 Philadelphian. I work as a Vice
11 President of Business Development and
12 Client Service Management for TRC
13 Companies, an international consulting,
14 engineering, and construction management
15 firm that focuses on the environmental
16 infrastructure and energy market sectors.
17 We have heavy emphasis on the energy
18 markets from all forms of electric power
19 generation, transmission, and
20 distribution to oil and gas production,
21 transmission, and distribution, and
22 downstream businesses such as refining,
23 liquefied natural gas, or LNG, and other
24 types of processing and manufacturing.
25 We help all of these types of companies

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2 plan, permit, and license, design,
3 construct, and operate facilities with
4 due regard to compliance and best
5 practices related to engineering,
6 environmental, health, security, and
7 safety aspects. For example, TRC has
8 assisted in permitting through
9 construction over 10,000 miles of natural
10 gas pipelines, assisted the majority of
11 the active domestic LNG import and export
12 facilities with their permitting and
13 licensing, and are currently working with
14 many other applicants seeking to convert
15 their LNG facilities or build new LNG to
16 export.

17 I'm joined here today by my TRC
18 colleague, John Hritcko, Senior Vice
19 President of our oil and gas business
20 line.

21 As a lifelong Philadelphian, I
22 really do take great interest in seeing
23 the City and region position itself to
24 take advantage of all the opportunities
25 that have begun to emerge in the past,

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2 say, seven-plus years in the energy
3 sector. It's in my role at TRC that I
4 can testify, due to our focus on energy
5 clients, we are one of the companies that
6 has benefited during otherwise rather
7 difficult economic times. Since my
8 previous testimony, TRC has grown to
9 approximately 3,500 employees from 3,000
10 and in more than 100 offices from 85. We
11 have an office downtown, two others just
12 outside of the City, in Plymouth Meeting
13 and Mount Laurel. We have a total of
14 seven offices in Pennsylvania, five in
15 New Jersey. We total nearly 600
16 employees in the region.

17 I was hired at the start of
18 2008 to open a Philadelphia office and,
19 in no small part, to take advantage of
20 emerging energy business opportunities on
21 the world stage that are playing out
22 across the country and specifically here
23 in the region and in Philadelphia. Our
24 Philadelphia office alone has doubled in
25 size since I last testified before this

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2 Committee.

3 Again, as perspective, in TRC's
4 role of helping plan, permit, and license
5 facilities, we gain an appreciation for
6 the business factors and decisions our
7 energy clients make to expand their
8 businesses. In our roles of supporting
9 and permitting, design and construction,
10 we offer consulting on the feasibility;
11 in other words, critical issues and fatal
12 flaws, logistics and constructability
13 aspects of our clients' decisions to
14 locate their business or facility in one
15 location versus many other choices of
16 location.

17 So back in 2013, I discussed
18 the Greater Philadelphia area's historic
19 position as the second largest domestic
20 center of petrochemical business behind
21 the Gulf. And it's based on world-class
22 existing infrastructure and assets, such
23 as rail, ports, a wealth of dedicated and
24 zoned industrial land, proximity to the
25 largest buying markets in the world, as

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2 well as education and workforce assets.

3 And I discussed that with the

4 revolutionary increases in domestic oil

5 and gas production and its proximity to

6 the Marcellus/Utica region, Philadelphia

7 can continue to be a leading global

8 player in the downstream oil and gas

9 market if we play our cards right.

10 In the changing energy

11 landscape and economics, back in 2013 I

12 discussed how rapidly production of oil

13 and gas was increasing, and others have

14 talked about this today. So rapidly that

15 it was really impacting supply and demand

16 and, therefore, depressing natural gas

17 prices. Industry, commercial

18 establishments, and residents alike were

19 able to share in those savings. Since

20 then, production increases have only

21 continued. You've heard that the U.S. is

22 now the leading producer of natural gas

23 and is on the verge of the number one

24 position in crude oil.

25 So natural gas has continued to

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2 outstrip demand and the takeaway
3 infrastructure that takes natural gas to
4 markets from the well heads. Thus,
5 natural gas prices have remained low,
6 dipping to even further sustained
7 historic lows, and analysts continue to
8 forecast low NG pricing for the
9 foreseeable future.

10 This is where it gets
11 interesting. So this economic condition
12 is one that opportunists are taking
13 advantage of now. For example, we have
14 merchant electric power generation
15 clients attempting to capitalize on or
16 lock in low natural gas prices right now
17 by looking to locate multiple natural
18 gas-fired power plants in the PJM
19 territory, our territory, where nearly 15
20 gigawatts of coal or plant retirements
21 are expected. So that's just one example
22 of opportunists taking advantage of the
23 market.

24 When we discuss the concept of
25 a regional energy hub, it's important to

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2 note that crude oil prices have decreased
3 to levels not seen in decades, which is
4 good for the regional refining business
5 and consumers of gasoline alike. In
6 addition, wet gas or natural gas liquids,
7 or NGLs, which form the basis of the
8 petrochemical industry, has also become
9 exceedingly abundant. In some domestic
10 production markets, the supply of NGLs is
11 so abundant, that producers have had to
12 pay to take away NGLs, like stranded
13 ethane or propane or butane. This offers
14 an opportunity for entities that can
15 develop uses for those distillates, like
16 ethane mixed into fuel for engines and
17 power generation, or for those like
18 Sunoco Logistics at Marcus Hook who plan
19 to take advantage of international
20 markets via export.

21 Lastly on sort of the economics
22 aspect, while the relative pricing
23 between oil, natural gas, and NGLs can
24 impact different industries,
25 opportunities generally exist in the

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2 downstream end-use markets when all these
3 commodities are priced low, as long as
4 there's reasonable access to and storage
5 of the feedstock and projects are
6 accepted and moved quickly to fruition.

7 So what are some of the
8 opportunities that Philadelphia should be
9 paying attention to and, as appropriate,
10 marshaling private, public, and political
11 academic and NGO resources in order to
12 take advantage of them? So this panel is
13 focused on international opportunities in
14 LNG exports. So I'll briefly discuss
15 that large-scale or world-class
16 opportunity, but there are other domestic
17 LNG markets, as we've heard today, to be
18 captured, as well as other natural
19 gas-intensive projects that could exploit
20 the abundant inexpensive supplies being
21 produced just a few hours' drive from
22 here. When considering an energy hub,
23 all options really should be considered.

24 So with regard to LNG export,
25 as I discussed back in 2013, world-class

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2 LNG export facilities cost billions to
3 construct, take approximately five years
4 to build after many years of the
5 permitting process, and create many
6 thousands of jobs through permit and
7 design and construction and up to a
8 couple hundred personnel to operate long
9 term, along with approximately a billion
10 dollars of wages that -- of taxes from
11 wages that exist during the phase that
12 includes construction and early
13 operation.

14 So as in 2013, given the low
15 price of natural gas in the U.S. compared
16 to much of the rest of the world, along
17 with the fact that there's an oversupply
18 in the U.S. and large natural gas demand
19 in other countries like Japan and India,
20 soon to be China, export of LNG appears
21 to be a tremendous opportunity for the
22 U.S. in general. Although, again, the
23 first movers will get advantage of the
24 highest global price points.

25 So it is now, as opposed to

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2 back in 2013, really public knowledge
3 that there's at least some interest in
4 Philadelphia as a location from which to
5 export LNG, but what's it like to get
6 approvals and what's the competition?
7 And in a word, it's challenging. The DOE
8 approval and FERC licensing and
9 permitting process is very comprehensive.
10 It looks at all types of engineering,
11 environmental and safety hazards, 13
12 required resource reports in all under
13 FERC. Many federal and state regulatory
14 agencies, including U.S. Coast Guard, are
15 engaged. And, for example, one issue
16 that could be problematic for
17 Philadelphia is the security and
18 logistics aspects of LNG tankers passing
19 under Delaware River bridges and past a
20 lot of population.

21 Further, the permitting
22 includes a formal stakeholder engagement
23 process. And others have talked today
24 about how that's incumbent upon any
25 developer anyway. That's what they

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2 should be doing. And my TRC colleague,
3 John Hritcko, will discuss this a little
4 further.

5 When I last testified, 19
6 domestic LNG facilities had been granted
7 federal DOE approval to export LNG to
8 countries with free trade agreement
9 status, the FTA status, and four others
10 were pending. So what this means is,
11 those facilities have approval to export
12 as long as they can get through the FERC
13 licensing and permitting process, as well
14 as the state and local permitting and
15 approvals and get a project built
16 economically.

17 Only one facility at that time,
18 Cheniere, who is here today, had been
19 granted non-FTA DOE approval and FERC
20 approvals and the remaining 22 were
21 awaiting non-FTA approval. Since then,
22 the current statistics are that nearly 40
23 applications have DOE FTA approval and
24 nine applications have DOE non-FTA
25 approval. Additional applications are

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2 under review. So competition, and the
3 market will bear that out.

4 How about beyond world-class
5 LNG export? We've talked a little bit
6 about this today, domestic and regional
7 LNG distribution markets. As mentioned,
8 regional domestic LNG markets exist that
9 have been and could be further exploited
10 by truck or domestic shipping or barging.
11 Many of the other testimonies today,
12 including my colleague, John Hritcko,
13 have or will be addressing these markets.
14 But one example -- and we've heard about
15 it -- is that the New England market has
16 a significant shortage of energy and
17 natural gas in particular that can be
18 served via LNG distribution. There are
19 many ways to skin the cat, as others have
20 discussed.

21 PGW has long recognized these
22 markets. PGW has been supplying regional
23 markets via truck distribution in the
24 process of requesting approval to make
25 upgrades that, among other things, would

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2 double the throughput of its LNG
3 truck-loading capacity in its Richmond
4 facility. So they're paying attention.
5 And a number of other developers have
6 shown interest.

7 What about beyond LNG? Other
8 potential natural gas energy hub type
9 projects, as discussed in 2013, a number
10 of other natural gas-intensive
11 opportunities exist. Most of these could
12 be located at the many more well-known
13 larger industrial parcels with land
14 underutilized and available for
15 development such as the Philly Energy
16 Solutions refinery, the potential
17 Southport energy port development area,
18 PGW facilities, including Passyunk and
19 others. Opportunities include -- and I'm
20 just going to list these because they all
21 have lots of details, but we're talking
22 like the grid-scale natural gas-fueled
23 power electric generation. That's still
24 the largest user of natural gas. So
25 that's one thing that could soak up some

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2 of the supply. Gas to liquids at both
3 world class, similar to LNG, and smaller
4 scales. It's primarily a domestic
5 market, but it also has international
6 market opportunities.

7 We've talked about
8 petrochemical processing, and the big
9 example right now is down in Marcus Hook,
10 Sunoco Logistics, but the manufacturing
11 distribution of NGLs and their
12 manufactured products. That could be at
13 various scales, and they could tap both
14 domestic and international markets.

15 I think you've heard in other
16 testimonies in the past about some of the
17 things that could go on to some of the
18 refineries around here, like
19 hydrocracking of methane for refining
20 purposes and possibly methanol production
21 and also fertilizer manufacturing. These
22 are some of the things that could be
23 taken advantage of that are heavily
24 natural gas intensive.

25 But here's the trick: If

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2 you're going to support the energy hub
3 vision, all the projects above that take
4 advantage of current economic conditions
5 and the various domestic and
6 international markets which could allow
7 the Greater Philadelphia region to
8 recognize the vision of an
9 internationally significant energy hub
10 are going to require, in my opinion, two
11 primary conditions. One is additional
12 feedstock and pipeline capacity. The
13 Philadelphia region and the City itself
14 is natural gas constrained. We use what
15 is delivered, and our pipeline capacity
16 is maxed out. Unlike crude oil, which
17 can be delivered by rail, natural gas and
18 natural gas liquids are more reliably
19 delivered through pipeline. A large
20 diameter pipeline into an urban area will
21 be a billion-dollar level investment.
22 Pipelines only get built if they get
23 long-term commitment contracts from end
24 users. So that intrinsically links these
25 potential end-use products and the

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2 pipelines that would deliver the
3 feedstock.

4 Can this be done? We need to
5 look no further than up the New Jersey
6 Turnpike to see how successful large
7 diameter natural gas transmission line
8 extension was safely and successfully
9 sited, licensed, permitted, and
10 constructed on schedule across urbanized
11 industrial Northern New Jersey under the
12 Hudson River and into New York City.

13 Just like in Philadelphia, New York City
14 had not had natural gas capacity
15 increases in over 40 years. TRC was
16 proud to support our client in that
17 project, engaging with nearly 70 public,
18 government, regulatory, and NGO
19 stakeholders in providing the permitting
20 and construction oversight services.

21 Bottom line is, it can be done
22 and it can be done safely and
23 successfully.

24 The second primary condition,
25 in my opinion, is, we need a government

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2 body that is not only receptive to these
3 downstream investments, but can
4 demonstrate a unified support. I don't
5 think it's a secret to say that after a
6 failed acquisition of PGW, the investment
7 community is wary and is going to look
8 for signals from our local government as
9 a unified body. These are major
10 investments. Speed to market is a motto.
11 It's very important, and investors will
12 find other places to invest if our great
13 city can't demonstrate that it is unified
14 in supporting the implementation of our
15 stated vision of this energy hub.

16 My colleague, John Hritcko,
17 will have additional suggestions for how
18 the City can support the energy hub
19 vision, but just in summary, as a
20 downstream participant in the oil,
21 natural gas, and natural gas liquids
22 market, Philadelphia will only benefit if
23 these supplies and commodities get here
24 reliably, safely, and as inexpensively as
25 possible. In order to take advantage of

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2 any or all of the opportunities above and
3 Philadelphia's logistically downstream
4 position, additional pipeline capacity or
5 other modes of transition will need to be
6 built to bring feedstock to market, and
7 the local government will need to be
8 unified.

9 TRC and I would be happy to
10 continue participating in working groups
11 to further discuss policy that can
12 support any of these initiatives and how
13 the public sector can support the private
14 sector to bring these initiatives to
15 market in the most sustainable fashion.
16 Developing and implementing a strategy of
17 prioritized initiatives should be
18 considered.

19 Thank you, Councilman Oh, for
20 inviting me to join you and to testify
21 today.

22 COUNCILMAN OH: Thank you very
23 much.

24 Sir, would you identify
25 yourself and provide us with your

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2 testimony.

3 MR. HRITCKO: I'm John Hritcko,
4 Senior Vice President of Oil and Gas for
5 TRC Companies.

6 Good afternoon. My name is
7 John Hritcko. I'm Senior Vice President
8 of Oil and Gas for TRC Companies, Inc., a
9 national engineering, consulting, and
10 construction management firm that
11 provides integrated services to the
12 energy, environmental, and infrastructure
13 markets.

14 TRC is headquartered in
15 Windsor, Connecticut and is comprised of
16 over 3,000 technical professionals and
17 support personnel in more than 100
18 offices throughout the U.S. and an office
19 in London, UK. TRC serves numerous
20 public and private clients operating
21 across the State of Pennsylvania through
22 our five offices located in the state and
23 nearly 500 people working throughout the
24 Northeast. Our network of offices and
25 people enable TRC to understand the

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2 technical aspects of projects as well as
3 local sensitivities and regional needs
4 that can be integral to project success.

5 We manage our business under
6 three operating segments: energy,
7 environmental, and infrastructure. About
8 60 percent of our business originates
9 from the power and oil and gas markets.
10 The remaining 40 percent falls within
11 transportation, industrial,
12 manufacturing, commercial, and government
13 contracts.

14 Nationwide, TRC serves a broad
15 range of clients in industry and
16 government, offering a wide variety of
17 services. A small sampling of the work
18 TRC performs includes support of site
19 selection; federal, state and local
20 permitting and licensing of energy
21 infrastructure, including natural gas,
22 oil, and petroleum product pipelines, LNG
23 and product terminals; design and
24 construction of electric transmission and
25 distribution systems and substations; air

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2 emission testing and analysis; ground and
3 surface water handling; wetland
4 mitigation; spill prevention, handling
5 and remediation; engineering design and
6 construction of roads and bridges,
7 construction management and compliance
8 monitoring; industrial health and safety;
9 and infrastructure security.

10 In Pennsylvania, TRC delivers
11 millions of dollars of professional
12 services each year to dozens of clients
13 in the oil and gas industry, utilities,
14 manufacturing, and transportation
15 sectors. We help clients ranging from
16 oil and gas production companies,
17 pipeline gathering and transmission
18 operators, local utilities, electric
19 generation and transmission companies,
20 electric grid operators, industrial
21 manufacturers, federal, state, and local
22 highway departments. In short, TRC
23 touches the everyday lives of people all
24 across Pennsylvania.

25 As my colleague here in

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2 Philadelphia, Mitch Bormack, has
3 discussed in more detail, TRC has
4 actively participated in and supported
5 various client initiatives in the region
6 over the past several years. These
7 initiatives and studies were driven by
8 the vast quantities of oil and natural
9 gas and petroleum products being
10 developed in Pennsylvania from the
11 Marcellus Shale play. As I pointed out,
12 TRC provides engineering, environmental,
13 and consulting services to many of these
14 oil and gas companies developing the
15 Marcellus play. We know the region well.

16 Additionally, Philadelphia is
17 uniquely positioned among major U.S.
18 cities, in that it owns and operates the
19 local gas distribution system, the
20 Philadelphia Gas Works, which includes
21 the liquefied natural gas plant at Port
22 Richmond.

23 This combination of newly
24 developed natural gas and petroleum
25 products in close proximity to

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2 Philadelphia, a city with a long history
3 of maritime commerce along the Delaware
4 River, and the existing LNG plant has
5 naturally fed the creative thinking which
6 this City Council committee seeks to
7 nourish and promote. In light of prior
8 public meetings and the reams of print
9 discussing these opportunities, I will
10 not revisit those proposals here today.

11 I will offer a few observations
12 and comments about Port Richmond and
13 provide some general guidance to the
14 members of this Committee regarding how
15 the City can best support entities
16 looking to develop energy-related
17 opportunities in the Philadelphia region.

18 First, transforming the
19 Richmond LNG plant into a world-class LNG
20 facility, while not technically
21 infeasible, would present significant
22 challenges. These include
23 technical/economic issues associated with
24 an urban site, maritime issues moving LNG
25 carriers from Cape May to Port Richmond,

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2 expanding the upstream pipeline
3 infrastructure needed to deliver large
4 quantities of natural gas for a large
5 facility like this, over a billion cubic
6 feet a day to the facility, air emissions
7 associated with large liquefaction
8 process equipment, beefed up utilities to
9 service the plant. The total cost for a
10 4 million ton per annum export facility
11 would easily exceed \$4 billion.

12 An extensive regulatory process
13 led by the Federal Energy Regulatory
14 Commission, or FERC, and coordinated with
15 a myriad of other agencies, including the
16 Coast Guard, EPA, National Fish and
17 Wildlife, Corps of Engineers, state of
18 local agencies, would likely take at
19 least 24 months to complete. Given this
20 location, a developer can be certain that
21 opponents to the plan would file
22 subsequent court challenges, resulting in
23 further delays. Additionally, FERC
24 certificates would also be required to
25 expand existing natural gas pipelines

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2 feeding the Philadelphia area. As
3 experienced by gas pipelines expanding
4 elsewhere in the Northeast, these
5 regulatory proceedings would likely
6 attract significant opposition as well.

7 Those challenges are simply
8 some of the site preparation and
9 permitting related issues. Public
10 acceptance of such a plan would be
11 imperative, and an extensive
12 well-executed stakeholder and community
13 relations program would be needed. Then
14 there are the commercial and regulatory
15 challenges of securing long-term sales
16 and purchase agreements with creditworthy
17 international buyers, not an easy task in
18 today's global energy markets. Acquiring
19 a DOE-issued permit to sell LNG to buyers
20 in non-free trade agreement countries is
21 currently problematic. Other export
22 terminals would compete for U.S. natural
23 gas supplies. In particular, the
24 Dominion Cove Point LNG export project
25 located on the Chesapeake Bay is far

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2 ahead in development and will tap the
3 same Marcellus gas that a Port Richmond
4 Terminal would look to export. Finally,
5 long-term shipping must be secured to
6 ensure delivery to LNG buyers overseas.

7 While viewed separately, each
8 of these issues is part of a typical
9 process that must be addressed while
10 undertaking a successful LNG export
11 project. There's nothing inherently
12 unusual about doing something here in
13 Philadelphia. But taken as a whole,
14 development of a world-class export
15 project at Port Richmond site would
16 present significant challenges even for
17 the most savvy and experienced LNG
18 project developer.

19 While the development of Port
20 Richmond into an LNG export terminal is,
21 at best, extremely challenging, there are
22 impactful actions that the City can
23 undertake to support potential projects
24 that would exploit the new and abundant
25 Marcellus Shale energy supplies while

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2 leveraging Philadelphia's brownfield
3 sites along the Delaware River for the
4 benefit of the City, its residents,
5 businesses, and the environment.

6 Just as our local, state, and
7 interstate highway infrastructure needs
8 to be upgraded or replaced, our energy
9 infrastructure, including pipelines,
10 compressor stations, natural gas
11 processing, petrochemical plants, and
12 utilities that support them, need new
13 investment, expansion or replacement as
14 well. Government policies and commercial
15 forces will drive much of this activity.
16 However, local support will be critical.

17 At TRC, sustainability is a
18 fundamental principal that drives our
19 business. We have found that for
20 projects to be successful, they must
21 balance interrelated economic,
22 environmental, and social concerns.
23 Clearly, if the City embraces this same
24 framework in dealing with the numerous
25 energy-related projects that come before

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2 City Council, Philadelphia will be better
3 positioned to assess, guide, and support
4 the creation of an energy hub.

5 Direction and support from the
6 City would offer tremendous momentum for
7 energy hub project proposals. Among the
8 actions the City may consider would be to
9 work with PGW to identify new or upgraded
10 pipeline system capacities needed to
11 support energy project proposals;

12 Extend this coordination
13 activity to other utilities such as PECO,
14 water and sewer, telecommunications
15 companies, et cetera, whose services
16 would be needed by the developers to
17 support new energy infrastructure
18 operations;

19 Work with industry, landowners,
20 and other stakeholders to establish
21 City-recommended infrastructure fairways
22 or rights-of-way that developers would
23 know early in the process to be the
24 preferred routes for access through the
25 City to brownfield sites being developed;

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2 Establish clear points of
3 contact within the City government to
4 constructively engage with energy
5 developers with high-impact projects;

6 Coordinate with City and
7 regional transit agencies, schools,
8 garbage haulers, and those who use diesel
9 fuel to identify how significant new
10 quantities of vehicle fuel supplies such
11 as LNG or propane that may be sold from
12 Port Richmond may be more effectively,
13 efficiently, and economically
14 incorporated into other operations;

15 Engage with other large
16 municipalities to identify best practices
17 employed to manage large infrastructure
18 development within densely populated
19 urban areas;

20 Undertake early direct
21 engagement with project developers,
22 regulatory agencies, and concerned
23 stakeholders to clearly understand the
24 impacts of a project and constructively
25 work to establish project acceptance

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2 during the review process;

3 And remain open to other
4 potential ways to leverage PGW's
5 ownership in the Port Richmond LNG
6 facility, such as small-scale LNG that
7 we've talked about earlier today that may
8 support regional initiatives, such as LNG
9 for vehicle fuels, LNG marine operations
10 at the Port of Philadelphia; that is,
11 fuels for tugs, supply boats, ferries, et
12 cetera, and LNG bunkering of large
13 seagoing vessels.

14 As I pointed out, the large new
15 supplies of oil and natural gas from the
16 Marcellus play and Philadelphia's
17 advantageous location along the Delaware
18 River and the region's rich industrial
19 history all combine to favor the creation
20 of an energy hub. Energy project
21 developers see the commercial and
22 economic advantages of Philadelphia. If
23 the City provides the appropriate support
24 to these projects, the energy hub can
25 become a reality.

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2 I thank you for this
3 opportunity to share TRC's experiences
4 and insights on LNG terminal siting,
5 permitting, and look forward to working
6 with this Committee on establishing
7 creative, innovative economy developments
8 in Philadelphia.

9 Thank you.

10 COUNCILMAN OH: Thank you very
11 much.

12 Would you identify your name
13 and -- well, would you give us your name
14 and give us your testimony.

15 MR. ABELE: My name is Morgan
16 Abele. I am President of Operations for
17 PULS, Incorporated.

18 Good afternoon and thank you
19 again, Chairman Oh, for the opportunity
20 to speak before the Committee. As I
21 stated, my name is Morgan Abele. I work
22 for a company called PULS, Incorporated.
23 We are a small business based here in
24 Pennsylvania. We serve both national and
25 international markets. We specialize in

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2 the location, marking, leak detention,
3 mapping, and protection of underground
4 infrastructure. We are one of those
5 small companies that has greatly
6 benefited from the Marcellus Shale
7 development both here in Philadelphia
8 within the Marcellus Shale and also in
9 the oil and gas development across the
10 United States.

11 My purpose in speaking here
12 today is to kind of address the issues
13 related to the proposed LNG project and
14 from a small business perspective of what
15 we see. We work with companies like TRC.
16 We'll be a subcontractor with a company
17 like TRC on projects. And really we'd
18 like to talk about the issues
19 specifically surrounding utility
20 infrastructure and the broader
21 development of Philadelphia as an energy
22 hub.

23 Philadelphia is uniquely sited
24 to take advantage of an LNG export
25 facility and for other energy

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2 development. There's ready access to
3 pipeline, rail, maritime facilities. But
4 as an old and densely packed urban city,
5 Philadelphia has some unique challenges
6 in terms of infrastructure, as does many
7 other cities up and down the Atlantic
8 seaboard. There are quite literally
9 fiberoptic systems buried next to
10 utilities with Ben Franklin's
11 fingerprints on them. It's a challenge.

12 The City's infrastructure is
13 considered a combination of old and new,
14 active and abandoned, well-documented and
15 unknown utility systems. This has and
16 continues to represent a significant
17 challenge to engineers and builders
18 working within this City.

19 To take advantage of the
20 opportunities such as the LNG facility
21 and other sites within the City will take
22 a thorough assessment, documentation,
23 upgrading of many of these transport and
24 utility systems. Specifically, we have
25 some very firsthand knowledge of this.

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2 We actually worked several years ago. We
3 were approached by the Port Authority to
4 map the Tioga Marine Terminal, which is
5 actually one of the sites considered for
6 the LNG project. The Tioga Marine
7 Terminal had gone through four major
8 upgrades since 1970. They resulted in a
9 multitude of incomplete and often
10 contradictory construction records.

11 When we began the project, we
12 were given over 700 design records for a
13 site that was 110 acres in size. You can
14 expand that out, and if you start
15 including the PGW site and surrounding
16 infrastructure, you can imagine the
17 number of records that we would have to
18 go through, analyze, and try to figure
19 out what was there.

20 We actually verified and
21 located all of the utilities and
22 supporting infrastructure on the marine
23 terminal. We had them surveyed and
24 mapped to a single CAD file. So what we
25 had effectively done is taken 700

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2 documents and generated a single digital
3 file, and it provided for any future
4 engineering or building permit an
5 accurate picture of the buried
6 infrastructure on site.

7 What I hope this illustrates is
8 the importance of understanding the
9 infrastructure in and around any site,
10 whether it's a proposed LNG or any of
11 these other facilities, and as previously
12 been mentioned, when you're starting to
13 try to bring infrastructure through these
14 very densely packed urban areas, trying
15 to find rights-of-ways, trying to find
16 sufficient right-of-way to install these
17 larger and upgraded infrastructure will
18 be a challenge.

19 The key development of the LNG
20 facility and, to a greater extent, the
21 development of Philadelphia as a true
22 energy hub for the 21st century will
23 require the development of new
24 infrastructure as well as the upgrading
25 of existing systems. This must occur not

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2 just in Philadelphia but extend from the
3 oil and gas development areas all the way
4 to Philadelphia, and this will be a
5 challenge, as has previously been cited.
6 Trying to get new pipelines from the
7 Marcellus into Philadelphia cross country
8 right now is quite challenging.

9 Both Philadelphia and the
10 producing regions must understand the
11 location, condition, and needs of the
12 infrastructure in order to make sure that
13 whatever product is delivered is done so
14 in a safe and efficient manner.

15 Moving forward as a company, we
16 believe in the development of the LNG
17 facility or facilities like it and for
18 Philadelphia as a terminus for the oil
19 and gas industry in general. To
20 accomplish this, we see the following
21 necessary pieces for successful
22 development of this facility or any
23 others:

24 First, clearly understand what
25 is buried in and around the sites for

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2 development. This means having this site
3 investigated and the location of the
4 utilities completed using industry
5 accepted standards. For example, the
6 American Society of Civil Engineers,
7 ASCE, 802 standard guidelines for the
8 collection, depiction of existing surface
9 utility data, also known in our world as
10 subsurface utility engineering, or SUE.
11 This provides an industry accepted
12 standard for understanding how data on
13 utility infrastructure was collected and
14 the quality of the data, so companies
15 like TRC understand what they're looking
16 at;

17 Complete this work in advance
18 of any final engineering/construction
19 development. This will greatly minimize
20 the risk, costly delays due to redesign,
21 utility damages or inadequate
22 infrastructure;

23 And, finally, as-built any
24 newly installed or modified utility
25 infrastructure. An as-built depicts

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2 utilities not as they were designed, but
3 as they were actually installed, and
4 there's often a great difference. This
5 ensures that any future work whether
6 engineering upgrade can be done at a
7 greatly reduced cost. And it's
8 surprising for us as new as many systems
9 are how many of them are not well
10 documented. We have systems that are
11 only a few years old and we still can't
12 find records for them.

13 Finally, in conclusion, this is
14 an exciting opportunity for the City. We
15 look forward to seeing it come to
16 fruition, and we thank you again for the
17 opportunity to speak before this
18 Committee.

19 COUNCILMAN OH: Thank you very
20 much.

21 Let me start with this: More
22 than one witness in giving their
23 testimony has talked about political
24 will. And so obviously something like
25 this, of course, you need support from

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2 the community and those who represent the
3 community, but in addition, given the
4 challenges in a project like this and the
5 timing issues, it appears that there's
6 some importance to getting direction from
7 the Mayor or the Council or some
8 politically responsible body. Could you
9 go a little bit into that. I mean, not
10 too long, but could you make it a little
11 more pointy and just tell us kind of like
12 what's the issue.

13 MR. HRITCKO: The issue with?

14 COUNCILMAN OH: Political will.

15 MR. HRITCKO: I think what
16 happens is -- and I've experienced this
17 personally in prior positions with other
18 companies prior to joining TRC where we
19 were developing large infrastructure
20 projects, that the projects can -- while
21 you have a very standardized procedure to
22 follow, particularly through the FERC
23 process who is enacting the NEPA
24 environmental review and coordinating
25 with all the agencies to examine a

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2 facility on a very fact-based basis, you
3 have folks who, for whatever reason, do
4 not like the project, whether it be too
5 close proximity to their homes, whether
6 they just don't like the fuel, whether
7 they -- for any number of reasons, and
8 that tends to grow over time. So the
9 longer these processes take, the greater
10 this momentum builds. And, quite
11 frankly, if you want to achieve public
12 acceptance of a facility, which is
13 necessary before you go forward, you have
14 to have very clear identification from
15 the local government that they are behind
16 this, that they see the advantages that
17 they -- and that they know that there are
18 impacts, that those impacts will be
19 adequately mitigated, and that at the end
20 of the process, they feel that the
21 developer has balanced the impacts and
22 the mitigation against the benefits that
23 the entire region is going to achieve
24 with that new infrastructure.

25 If you don't have -- if you

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2 don't have early engagement, as I said in
3 my testimony, and actively and
4 constructively work with developers, with
5 the stakeholders, with the regulatory
6 agencies, there's a lot of concern as to
7 whether or not the project will ever be
8 built, because those questions keep
9 building over time and what happens is,
10 while they may not kill the project, they
11 just stretch the project development
12 period out. And if you stretch it out
13 long enough, oftentimes opponents know
14 you stretch something out long enough,
15 time is money, they can kill the project
16 that way.

17 So it becomes very important
18 that the local, particularly in this case
19 the City government, be seen as a
20 supportive entity in or supportive
21 stakeholder in the process, that they are
22 watching not only for the interest of the
23 City, the residents, the businesses who
24 would benefit from the activity or
25 infrastructure, but also the local

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2 environment and whatnot surrounding the
3 area. If that could be seen, if they're
4 active in constructively pursuing the
5 process, you can in fact achieve
6 acceptance by the general public.

7 You always have folks who don't
8 like the project. It's like anything.
9 You go for an election, it would be at
10 least 20 percent that doesn't matter what
11 you say or do, just don't want it there.
12 But if you can have the City seen as
13 being actively engaged, actively
14 supporting and creatively working to
15 mitigate the issues that do come up, you
16 stand a much better chance of seeing
17 these projects that are being brought
18 into this region develop and have an
19 energy hub created.

20 MR. BORMACK: In fact, on top
21 of that, you heard from Jason French that
22 just the application process for their
23 project was \$100 million. Now, that's
24 the largest scale LNG project out there,
25 but many of the applications are tens of

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2 millions of dollars in costs. So they
3 have to decide at the outset whether they
4 want to spend that kind of money just to
5 even apply. And if it's going to be
6 Philadelphia or, you know, somewhere in
7 the Gulf, they've got to make some
8 choices.

9 Now, smaller-scale projects
10 obviously have lower costs and lower, you
11 know, barriers to entry, but there's
12 still -- they're also going to have lower
13 returns. So they have to make the same
14 go/no go decisions. And having some
15 support from the local government and
16 knowing that it's unified is important.

17 MR. HRITCKO: And I think this
18 gets back to what I said about the
19 sustainable development. A lot of people
20 think sustainable development is green,
21 it's recycling, it's those types of
22 activities. It's much broader than that,
23 especially when you're dealing with large
24 infrastructure projects. And it can be
25 energy infrastructure, it could be roads

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2 and bridges, it could be any type of
3 thing that's going to be developed. You
4 have to recognize -- and we have as part
5 of TRC's sustainable development plan, we
6 recognize the three areas, as I said, the
7 economic, the local stakeholder people,
8 and also the profitability of the project
9 itself. We call it the three P's -
10 planet, people, and profitability, and
11 all those have to be balanced. You can't
12 have an imbalance in the process, because
13 the project will likely not be built.

14 But you have to recognize that
15 the pluses and minuses that -- any type
16 of new development like this comes with
17 certain risks or certain mitigation
18 impacts that some people may not
19 particularly care for, but if you address
20 those to the best extent possible and
21 maximize the benefits of the project to
22 the region, you have the highest
23 likelihood of being able to do that.

24 So if the City follows that
25 same type of analysis or pattern or

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2 framework of analyzing these projects and
3 just doesn't look at it as to, okay, who
4 is screaming the loudest, whether they're
5 for or against it, and take a political
6 view of it, these projects stand a much
7 better chance of coming to fruition.

8 COUNCILMAN OH: Well, it sounds
9 like the support of the community and
10 particularly the guidance and direction
11 or the clear vision of the political body
12 is a determining factor or one of the
13 determining factors in where the
14 investment will go. Is that accurate?
15 In other words, what I'm saying is, there
16 may be some very favorable physical
17 conditions in a certain location, but
18 there isn't a clear purpose from the
19 political body and there may be a little
20 less attractive location, but a very
21 strong and clear sense of support for a
22 project and the project investment may go
23 to a location that is less than -- it's
24 not one of the best locations, but it's a
25 stable and predictable location. Is that

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2 fair to say?

3 MR. HRITCKO: Yes, and that
4 gets back to what the prior comments were
5 made, as I said, about the up-front costs
6 of just getting to the point where a
7 company or a group of companies can make
8 a decision as to whether to go with the
9 project or not. And I know from my prior
10 work experience, particularly with Shell
11 Oil Company in developing infrastructure
12 projects, I agree with that hundred
13 million dollar number of up-front costs
14 to do the preliminary engineering, all
15 the regulatory work and whatnot. So you
16 spend 100 -- people don't realize, you
17 spend \$100 million just to get to a point
18 where you can make a decision as to
19 whether or not you're going to go
20 forward. Well, if you're moving or
21 proposing to put a facility in a number
22 of different locations, one of the things
23 you're going to weigh is the likelihood
24 that it would be accepted by the local
25 government and by the local population,

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2 and you'll weigh that in terms of
3 determining where you're going to spend
4 that money in order to ultimately get a
5 doable project.

6 MR. BORMACK: All things being
7 reasonably equal, where you're going to
8 get support for the project is going to
9 be a big basis of your decision,
10 especially if speed to market matters.
11 And it could be like a real large-scale
12 project where you're competing very
13 nationally or even internationally to be
14 the location of choice or for a smaller
15 scale LNG project, it might be between
16 you and Delaware County, and Delaware
17 County may not be the absolute ideal, but
18 if they're supporting it, Philadelphia
19 loses.

20 COUNCILMAN OH: Just one last
21 question. The market or the investment
22 community or the business community, why
23 are they -- why do they get a signal from
24 the lack of the sale of PGW to UIL? In
25 other words, if UIL, the deal goes

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2 through, they purchase PGW, and given
3 their lack of capitalization and other
4 things, it doesn't look like a good deal,
5 they get bought out by Iberdrola, we lose
6 our ability to do anything with the
7 liquification process and I'm not sure
8 what happens after that. But, in other
9 words, was there an interest on the part
10 of the investors and other business
11 people that if UIL purchased PGW, that
12 something was open for business, that
13 they would come in and start doing
14 something with UIL that they couldn't do
15 with the City or with PGW? What was the
16 significance of UIL?

17 MR. BORMACK: Well, I think
18 it's twofold. One is the simple
19 recognition that UIL spent a lot of money
20 and time and resources on the potential
21 acquisition, and I guess there is a
22 perspective that perhaps they got strung
23 out. Again, when you're making decisions
24 about speed to market, that matters. If
25 you are then perceived as a body that's

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2 not unified that's going to support
3 something, why go there? Why not go to
4 somewhere that's the next best choice?

5 In addition, if UIL was here
6 and it was a privatized scenario, yeah,
7 there are many more opportunities that a
8 privately owned investor utility could
9 do. They can move faster. They can make
10 investments quicker. All this speed to
11 market stuff is for real. So it's the
12 first investment and then there's the
13 subsequent things that could have
14 happened around it.

15 COUNCILMAN OH: Yes. I do
16 understand and, you know, I mean -- I'm
17 just interested. I think certainly if
18 the City had completed the sale, then
19 business would be done much faster
20 perhaps with UIL, but I don't know that
21 it would have been with the City's
22 interest. But things could be sold, you
23 know. There's a lack of public input.
24 There's other things.

25 MR. BORMACK: That's the

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2 analysis part. That's the part that John
3 is talking about. If you look at it from
4 a framework of a sustainable investment
5 and decision-making process, you can
6 decide whether you want to be supportive
7 of a project, but signaling to the
8 investment community that you are unified
9 is going to be important.

10 COUNCILMAN OH: If we quickly,
11 and I don't know that we will, but if we
12 quickly come behind something that makes
13 more economic sense to the City in terms
14 of best interest of the public and by
15 opening up the broader range of
16 possibilities than simply a UIL type
17 sale, much broader range, are we
18 signaling now an interest in finding a
19 better deal that is attractive to
20 investors or do you think we are not?

21 MR. BORMACK: I think it's a
22 start. It's a good start, but an
23 industry looks at this from afar and
24 says, whoa, that was a tough acquisition
25 and failed acquisition process and do we

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2 even want to dip our toes. So you have
3 to continue to look receptive, look
4 unified and open for business, so to
5 speak. I'm not saying at all costs. I'm
6 saying for things that make sustainable
7 sense.

8 COUNCILMAN OH: Well --

9 MR. ABELE: I was just going to
10 say, I think also with people that we
11 talked to, there was somewhat of a view
12 of entrenchment by the City, and I think
13 if you're an outside investor looking at
14 this, is the City friendly to investment,
15 friendly to development, and I think, if
16 I'm not mistaken, PGW is the last major
17 municipal-owned gas company in the United
18 States. So there's somewhat of that view
19 of is this somebody we can work with and
20 especially after the process was somewhat
21 drug out a bit, I think. Am I as an
22 investor going to suffer the same fate.
23 It's the perception.

24 COUNCILMAN OH: I think those
25 are legitimate points and I think

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2 particularly from afar, particularly
3 getting the news through a third party,
4 being our press, certainly the proposals
5 that we have looked at up to this
6 point -- and I'm not saying me
7 personally. I mean, I'm aware of some
8 proposals -- they just seem far better
9 than what we were looking at, because the
10 contract was not reported in the press
11 and the terms and conditions.

12 I think one of the -- there's
13 several projects -- me personally, I look
14 very favorably on some of the proposals
15 that have been made because there's
16 private dollar investment for the
17 development of an asset that would add
18 dollars and opportunities to the City.
19 At the same time, we continue to provide
20 a service, a public service, and that is
21 part of the calculation. If we are -- we
22 ultimately will add up for the City
23 what -- in other words, if we sell PGW
24 and somebody else sells or leases or
25 develops our liquification process and we

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2 have no benefit for the citizens and they
3 have no input -- I mean, this process at
4 this point in time I think is that we are
5 exploring this hopefully quickly, but we
6 will then be able to provide the citizens
7 of Philadelphia the range of options.
8 They'll also be able to say we don't want
9 to do it or we do want to do it, and if
10 they say we don't want to do it and we
11 don't -- then, you know, that gives you
12 the answer might as well not invest here.
13 If they say we want to do it, then that
14 gives you the answer that there's
15 probably long-term support for the
16 project.

17 But that's my two cents. I'm
18 interested, but I also will say that in
19 comparison, that initial conversation I
20 had with KEPCO in 2012, they told me it's
21 about a \$6 billion investment and a
22 feasible project, a doable project that
23 they were not necessarily interested in
24 doing, but interested in exploring. But
25 it seems like their number, converting it

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2 from like Korea to here, is generally
3 about right for the project that they
4 were talking about.

5 Anyway, I have remained in
6 touch with them and others, and so I
7 appreciate getting their perspective on
8 Philadelphia's opportunity and the
9 investment given all those hurdles. I'm
10 only saying that because this is, I
11 think, from what you've said, a kind of a
12 two-way process where we're going to have
13 to clarify on our part, City government,
14 which is not at all one body -- we've got
15 a Mayor, we got a Council. We have 17
16 different people, 17 different reasons
17 why we like or don't like something, and
18 we're going to have to also get out to
19 the community, get their input, as you
20 said. Not everybody likes this idea.
21 Some people love the idea. But the main
22 thing I have to be able to tell people
23 is, here's the benefit, here's the
24 dollars, here's the jobs, here's the
25 risks, here's the concerns, and then

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2 here's how much time we have to get to a
3 decision if we're going to play in this
4 sandbox.

5 MR. HRITCKO: One thing,
6 Councilman, I'd point out as well that
7 unfortunately you have working against
8 you being a local governmental agency or
9 local governmental body is that when we
10 talk about these projects, many of these
11 projects, as was said earlier this
12 afternoon, are multi billion dollar
13 projects taking multiple years to go
14 through a review process and then
15 continuing on through various levels of
16 maybe legal review and whatnot
17 afterwards. You're looking at a typical
18 large project. It's not uncommon for
19 those to have -- looking at a four- to
20 five-year timeframe just from the time
21 they are announced to the time they
22 actually start turning dirt and actually
23 building the facility. When you look at
24 dealing with -- and I've done this in the
25 past with large projects. You look at

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2 the local landscape, the governmental
3 landscape, both local and statewide, and
4 say, okay, if we get started here and
5 we're going to take this amount of time
6 which is statutory required time to go
7 through a FERC review and all the others
8 and then we add on some time for
9 additional delays or whatnot, you're
10 talking a couple years. How many of
11 these folks that we're dealing with today
12 when we start are actually going to be
13 still in office? And if they're not in
14 office, who might be in office? And we
15 hire the political consultants, local
16 political consultants, to advise us,
17 okay, what's the landscape, what it might
18 look like. So it becomes very
19 problematic.

20 So these are -- not only are
21 they large amounts of dollars, but
22 they're also long time periods before
23 they go through the gestational process,
24 and just being a governmental agency to
25 deal with something like that, to

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2 understand where it might be moving

3 during the course of elections and

4 turnover in folks makes it difficult.

5 But if the City from the Mayor and the

6 Council can establish an idea, a vision,

7 a guidance, generally -- they don't have

8 to say we support LNG exports only or we

9 only support power generation or vehicle

10 fuels. You just say we support the

11 redevelopment of brownfield sites within

12 the City that may require access to the

13 river, to the maritime areas, and we will

14 in fact work to smooth the way to ensure

15 that all the ancillary infrastructure

16 that is needed to support that is

17 properly done so that it balances the

18 needs and impacts on our local

19 residences, businesses, whatnot. If you

20 have that sense that, okay, the

21 government -- we know that local

22 government, even though it may not be the

23 same bodies sitting there four, five

24 years from now, but that's the direction

25 they want to go, it helps tremendously

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2 the developers knowing that there is at
3 least a desire by the government. It's
4 not a place that is known, well, they're
5 just hard to do business with, you'll
6 never be able to work with this project
7 long enough to be able to get them to
8 stand still and say yes at the time you
9 need them.

10 So that's all part and parcel
11 of developing these large processes. So
12 it's very important that the City
13 establish itself as looking toward the
14 future, not just the immediate impacts,
15 local political implications or whatever,
16 that we're looking long term for the City
17 of Philadelphia. It was a city of
18 independence when the country was first
19 formed because of its close access to the
20 resources and waterways. It was the
21 arsenal of democracy during World War II.
22 What do we as Philadelphia look for
23 ourselves in the 21st century. How are
24 we going to take advantage of this new
25 resource that we have available and be

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2 able to interact in world commerce and
3 leverage that for the betterment of all
4 Philadelphians. And so if you have that
5 vision, say yes we want to do this, we
6 want you to bring -- we want you to bring
7 that product here to Philadelphia rather
8 than taking it down to the Gulf Coast
9 where the existing infrastructure is, but
10 you have to move it 1,500 miles through
11 pipelines or whatever, you have to show
12 the developers that you in fact are
13 embracing that concept.

14 COUNCILMAN OH: Okay. Well,
15 thank you very much.

16 That concludes our panel, and I
17 believe that before we end, by the way,
18 we do have a public comment, but let me
19 say I appreciate your coming in, your
20 testimony. I know we have another event
21 to go to, and I believe that before we
22 get to that, Lois, are you going to --
23 and so thank you very much. And we have
24 public comment. Public comment is three
25 minutes, but basically since we only have

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2 one person, we'll extend that. So this
3 will be Matt Walker from Clean Air
4 Council.

5 (Witness approached witness
6 table.)

7 COUNCILMAN OH: Would you state
8 your name, identify yourself and give
9 your public comment, please.

10 MR. WALKER: Yeah. My name is
11 Matt Walker and I'm the Community
12 Outreach Director with Clean Air Council.
13 As you know, we're a non-profit
14 environmental health organization
15 headquartered in Philadelphia. We've
16 been working to protect air quality for
17 over 40 years. Thanks for the
18 opportunity again to speak here at City
19 Council, Councilman Oh.

20 First I'd like to say
21 additional LNG facilities, whether
22 doubling LNG capacity for ships and
23 trucking fleets or exporting it overseas,
24 would greatly increase air toxins and
25 smog precursors in Philadelphia. The

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2 main emissions from the liquification
3 process are from the ongoing combustion
4 of natural gas used for compressor
5 operations, and there are also fugitive
6 methane emissions and other emissions
7 from general station operations and
8 venting and fugitive emissions from
9 compressors and engines.

10 LNG expansion would result in
11 increased traffic volume and associated
12 pollution by trucks and marine vessels
13 that would transport LNG from the
14 facility.

15 Clean Air Council believes that
16 any expansion of LNG could negatively
17 impact the health of residents living in
18 the neighborhood such as Port Richmond, a
19 low-income community.

20 It's a little ridiculous and,
21 frankly, a waste of time that we're even
22 discussing a potential liquefied natural
23 gas export terminal for Philadelphia. An
24 LNG export terminal is not feasible for
25 Philadelphia. Philadelphia does not have

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2 an export license and would have to get
3 behind about 17 other proposals currently
4 waiting for Department of Energy
5 approval.

6 In 2006, PGW proposed the
7 liquefied natural gas import terminal for
8 Port Richmond. The proposal drew fierce
9 public opposition and was unanimously
10 rejected by City Council. Any future
11 proposal would very likely spur strong
12 public opposition.

13 In addition, the deepened
14 Delaware River will not be deep enough
15 for ships, and Philadelphia bridges are
16 not high enough to allow passage of
17 international class LNG ships. In
18 addition, LNG export specifically would
19 subject PGW to considerable development
20 and market risks.

21 Concentric, the consulting
22 company hired by the City, views the
23 dramatic expansion to serve LNG export
24 markets as unrealistic and non-viable
25 under any PGW partnership or ownership

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2 structure. Concentric stated in their
3 report that PGW is too late to the
4 competition and does not have an
5 advantage location. They also noted the
6 following as potential obstacles: the
7 ability of LNG vessels to navigate the
8 Delaware River to the Port Richmond site;
9 alterations to in-tank pumps could affect
10 the grandfathered status of the storage
11 tanks; expanded infrastructure may
12 require larger exclusion zones;
13 uncertainty regarding ability to acquire
14 a leased property necessary for larger
15 export projects, for example, the Tioga
16 Marine Terminal.

17 Excuse me. The conversation is
18 a little bit distracting in the
19 background there.

20 Anything you can do about that?

21 COUNCILMAN OH: I'm sorry.

22 Would you take the conversation outside
23 during the time that we have the
24 testimony. It's distracting the witness
25 while he gives his testimony. Thank you

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2 very much.

3 MR. WALKER: Thank you.

4 LNG exports are even more
5 energy intensive than gas drilled and
6 burn at home. After the gas is
7 transferred, liquefied for export, and
8 then regasified to burn, the life cycle
9 emissions of exported LNG are 15 percent
10 higher than gas consumed domestically.
11 I'd like to make a comment about the
12 sustainable development that's -- make no
13 mistake, LNG is in no way, shape or form
14 could be considered sustainable
15 development.

16 An LNG export project would
17 also result in substantial greenhouse gas
18 emissions, including CO₂, carbon dioxide
19 and methane, which are extremely damaging
20 to the climate. The liquification
21 process produces especially large amounts
22 of carbon dioxide, more than is produced
23 in the whole life cycle of coal prior to
24 combustion, including production,
25 processing, and transport.

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2 Throughout its life cycle, LNG
3 generates substantially more greenhouse
4 gas pollution than natural gas, whether
5 conventionally or unconventionally
6 sourced. In addition, methane is the
7 potent greenhouse gas and some studies
8 indicate has between -- it has 105 times
9 the global warming potential of carbon
10 dioxide over a 20-year time period.
11 Large amounts of methane escape into the
12 atmosphere at all stages of production,
13 processing, transmission, and
14 distribution of natural gas.

15 For some context about air
16 pollution, Dominion's Cove Point LNG
17 facility in Maryland would be the fourth
18 largest greenhouse gas emitter in the
19 State of Maryland just behind three major
20 coal fire-powered plants. As part of the
21 project, Dominion is preparing to power
22 liquefying and cooling operations with a
23 brand new gas-fired power plant, which
24 will add substantially to the emission.

25 In British Columbia the study

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2 found that three LNG plants there would
3 collectively burn in a confined air shed
4 the equivalent of 60 percent of all the
5 natural gas currently burned in the
6 entire province of British Columbia
7 every year. The study found that if the
8 plants were built, nitrogen oxide
9 emissions would increase 500 percent
10 above existing levels. Volatile organic
11 compounds and particulate matter would
12 also increase by 25 percent.

13 In addition, while gas prices
14 are currently low, exporting gas overseas
15 will cause gas prices to rise, which
16 could impact PGW customers, especially
17 low-income residents.

18 Lastly, yet perhaps most
19 importantly, LNG is dangerous and is
20 potentially explosive. There will be
21 many safety concerns for residents of
22 Philadelphia that could not be resolved.
23 An incident in Washington state in 2014
24 injured five workers and led to an
25 evacuation of everyone within a two-mile

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2 radius. That's just one example. This
3 type of evacuation would be impossible to
4 actually achieve here in Philadelphia.

5 It makes no sense to locate
6 this infrastructure in a densely
7 populated urban area like Philadelphia.
8 Clean Air Council will oppose any
9 proposals for an LNG export terminal, and
10 we urge City Council to reject any future
11 LNG proposals.

12 Thanks for your time. Do you
13 have any questions?

14 COUNCILMAN OH: I do. Are you
15 saying that we should continue with the
16 oil and current energy, we should
17 continue shipping the oil in and --

18 MR. WALKER: I don't know if
19 you heard -- have you heard any of my
20 previous testimonies? I didn't -- and
21 I'd be glad to --

22 COUNCILMAN OH: I've heard
23 wind, solar, sun. I have heard that.

24 MR. WALKER: So you know that
25 there is -- our position is a swift

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2 transition away from this type of
3 infrastructure and toward a renewable
4 energy future, and you have some
5 countries are actually achieving 100
6 percent renewable energy currently or at
7 least large percentages, and some cities
8 are doing that.

9 COUNCILMAN OH: Are you talking
10 about Germany?

11 MR. WALKER: Germany is an
12 example.

13 COUNCILMAN OH: What do you
14 think about them burning coal? Is that
15 okay?

16 MR. WALKER: I mean, they're
17 currently burning coal, but they're
18 quickly shifting away from fossil fuels.
19 What we're doing here is trying to put
20 our investment into an energy source of
21 the past. And so we do understand there
22 are -- the Council understands there are
23 energy sources out there that are already
24 operating, already producing electricity,
25 et cetera. Those are going to be phased

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2 out over time. And we need to ensure
3 that they're in compliance, they're under
4 proper regulation, what-have-you. What
5 we don't want to do is to help facilitate
6 and invest in a huge energy hub that
7 stays entirely on fossil fuels for the
8 Philadelphia region. We're asking for
9 the investment into jobs. And it doesn't
10 have to be necessarily in sustainable
11 energy, but jobs in sustainability for
12 Philadelphia and green water
13 infrastructure, in transit-oriented jobs
14 and sectors and, yes, in solar rooftop.
15 City Council passed a resolution to
16 support 20,000 rooftops with solar I
17 think by 2025 or 2035 or something like
18 that. To achieve that, that would be a
19 pretty good chunk of electricity going
20 over to renewables.

21 One question I always get is,
22 why can't we do both, right? But really
23 the amount of time that you're taking
24 personally to set up all this stuff to
25 really look into and the amount of time

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2 that you and your staff have to spend
3 looking into all these issues with the
4 fossil fuel energy hub, I can guarantee
5 that you're not spending a similar amount
6 of time on the renewable energy hub or
7 sort of sustainable jobs hub, if you
8 will, for Philadelphia. Is that right?

9 COUNCILMAN OH: We do spend
10 time on that, but so far, what we've
11 gotten back is that it doesn't provide
12 the amount of energy -- it's a good thing
13 to do and there's improving technology,
14 but it doesn't provide enough energy at
15 this point in time. So if the technology
16 gets better and there's things that we
17 can do, we've looked at some other
18 countries, what they're doing with wind,
19 solar, different types of products that
20 you could put on your windows and those
21 type of things to generate more solar
22 power and some of the configurations of
23 how renewable energy can work, but up
24 until now, unless there is something
25 additional or that we can do, there is

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2 not really a feasible opportunity for us
3 to the extent that we're next to
4 Marcellus Shale, we have the river, and
5 whether or not -- it may not be that
6 we're able to export on tankers under
7 the -- not because we can't get tankers
8 under the Ben Franklin Bridge, but
9 because there aren't buyers or other
10 things. It may be that there are smaller
11 opportunities, and that is what we're
12 going to explore, and then we'll put that
13 in front of the citizens, and at the same
14 time your organization can express and
15 educate them about the hazards, the
16 dangers and things like that, and also
17 what are some other renewable type
18 opportunities and whether or not we can
19 get a similar industry situated in
20 Philadelphia.

21 As I deal with global
22 opportunities, creative/innovative
23 economy, I will look at things that I
24 think are economic growth opportunities,
25 because I only deal with the economy side

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2 of things, you know, music opportunities,
3 filmmaking, things like that, science,
4 petrochemicals, global. But we have a
5 committee. You just heard from
6 Councilwoman Blondell Reynolds Brown, and
7 I'm on her committee that deals with
8 environment. That's something she looks
9 at, and then her committee may find
10 concerns. My committee will look for
11 opportunities. We'll get together. We
12 got to deal with the Mayor, the new
13 Mayor, and then we have to put all this
14 information in front of the people,
15 because regardless of what I think and,
16 frankly, what you may think, you know,
17 we'll leave it up to the people to get
18 some type of input from them. And then
19 at the end of the day, there will be, as
20 these folks said, either the political
21 will to go forward or the decision is
22 that the people of Philadelphia don't
23 support it and, therefore, we can let the
24 opportunity or the problem go to another
25 location. And I think that's going to be

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2 the process.

3 MR. WALKER: And I just want to
4 clarify, as far as energy demand goes,
5 energy demand is pretty flat right now in
6 the PGM grid.

7 COUNCILMAN OH: Did I say
8 something that you're --

9 MR. WALKER: Yeah. You were
10 talking about energy demand, like we have
11 all this demand for energy.

12 COUNCILMAN OH: I didn't say
13 that. I didn't say anything about energy
14 demand.

15 MR. WALKER: Okay. I guess you
16 were saying like how do we fulfill demand
17 for -- I don't want to put words in your
18 mouth, but sort of like the energy needs
19 we have right now.

20 COUNCILMAN OH: No; energy
21 opportunity.

22 MR. WALKER: Okay. I guess
23 what I'm saying is, there is an
24 understanding that the existing energy
25 mix is kind of what it is right this

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2 second, but that any sort of new work
3 should be, in our opinion, focused on
4 things that are non-polluting, is what
5 I'm suggesting, and that through policies
6 and what-have-you, private investment, we
7 need to be shifting rapidly away from the
8 current energy mix as soon as possible.
9 So that's our perspective, and I can send
10 you over research kind of backing up some
11 of the things I've talked about.

12 COUNCILMAN OH: Yes.

13 MR. WALKER: And looking at job
14 comparisons between the renewable energy
15 sector and --

16 COUNCILMAN OH: Sure. Any
17 information is welcomed. So you can send
18 it to my office. You can e-mail it. You
19 can mail it. You can hand deliver it.
20 But we will look at it.

21 MR. WALKER: Any other
22 questions?

23 COUNCILMAN OH: No.

24 MR. WALKER: Thanks.

25 COUNCILMAN OH: Thank you very

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2 much, and thanks for coming in, spending
3 all this time and providing your public
4 comment.

5 Is there anyone else here for
6 public comment?

7 (No response.)

8 COUNCILMAN OH: Seeing none, I
9 am going to recess this hearing on the
10 resolution until the call of the
11 Chairman.

12 Thank you very much.

13 (Committee on Global
14 Opportunities and the Creative/Innovative
15 Economy concluded at 4:20 p.m.)

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CERTIFICATE

I HEREBY CERTIFY that the
proceedings, evidence and objections are
contained fully and accurately in the
stenographic notes taken by me upon the
foregoing matter, and that this is a true and
correct transcript of same.

MICHELE L. MURPHY
RPR-Notary Public

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