

Executive Summary



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Providing Cleaner Energy for the Many

The inaugural Gas Fest takes place at a time when the world is transitioning towards a carbon neutral future.

1.2 billion people have little or no access to electricity. Gas holds the potential to provide cleaner energy for the many.

There is a push from global and local authorities to use cleaner sources of fuel. Gas provides a replacement for more polluting fossil fuels such as coal and oil in the energy production and transport sectors.

A lot has been achieved, but there is still potential for shaping a better future by using the use commercial and environmental benefits that gas offers.

The gas industry as a whole needs to develop a coherent message and a strategic roadmap on how the benefits that gas provides will ensure that it stays relevant for the foreseeable future.

The Gas Fest is uniquely designed to engage high-level leaders and influencers across the value chain, onshore and offshore, in framing the gas agenda.

Through a carefully designed collaborative process, the participants explored opportunities and challenges, identified solutions and shaped the way forward on utilizing the benefits of gas in providing cleaner energy for the many in a carbon neutral future.







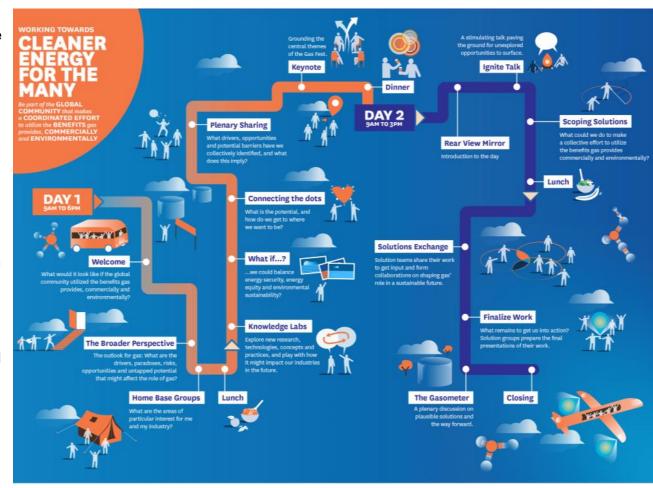
Our Journey

The Gas Fest began with a welcome from Stijn van Els, Chairman of Shell Germany, who reminded the group how far Europe has come since the coal-filled years of his youth, in large part, thanks to natural gas. His belief, that gas will play a key role as a bridge fuel started the Gas Fest on an optimistic note.

From here, a panel of experts expanded our thinking. The panelists agreed that gas has a crucial role in sustainability in Europe, and that the industry needs to better communicate about the benefits of LNG, and work to develop new technologies to make gas even more sustainable in the future.

The group divided into thirteen Home Base teams with each tasked to define their topic and to come up with most urgent issues to address collectively. The Home Base teams would continue to meet and improve their ideas throughout the Gas Fest.

Next, the participants went into four different Knowledge Labs to learn more. In the Labs the understanding of the issue was augmented by presentations from a variety of experts on the subject.







Our Journey

Participants worked in small teams to identify the key points of the presentations and how they are relevant to the gas industry. These insights were then taken back to the Home Base teams to raise the understanding of the group and to use the info to further refine their solutions.

To envisage the future, participants went into new groups to work on two 'What If' scenarios: one about a positive gas future, and the other about a negative future.

We closed Day 1 with a keynote from Stijn van Els. He walked us through two highly useful scenarios about the future of gas. Both scenarios, one with a focus on aggressive sustainability, and the other in which the economy slows down, showed a prominent role for gas.

Jakko Eskola, President and CEO of Wärtsilä, closed Day 1 with encouraging words about the work of the day and an invitation to celebrate with drinks and dinner.

The following morning David Bodanis, author and thought-leader, started the day by expanding the thinking about 'truth' using Einstein and his later work as an example. With this information in the mind of participants, they further refined their solutions in their Home Bases. The solutions were shared in two rounds with the others, and finally discussed as an entire group in the closing plenary, where next actions and steps were debated and agreed upon.









Opening Panel

Moderator:

Gabrielle Walker

Panelists:

Didier Sire, World Energy Council Johannah Lamminen, CEO Gasum Rudolf Huber, Chair, LNG Austria Jan Valkier, Veder Group

The opening panel set the context and opened our minds to issues and ideas to engage with over the next two days. Didier Sire reminded us that demand for electricity will double by 2060. Half of power generation will still be nuclear or gas or coal. The goal for gas is to have a larger role in power generation. He felt the most challenging issue for gas is the transport sector, where 40 percent of all emissions come from, and where we will need diverse solutions to bring emissions down. It's not a battle against diesel, electric cars. It's about consumer power and access.

Johannah Lamminen reminded us that gas has a crucial role in sustainability in Europe. Crucial for the industry is to win the hearts and minds of consumers, who are demanding change faster than regulators can keep up with. She challenged us to create smart, ecological, economical partnerships that tailor solutions for our clients.



Jan Valkier warned us that LNG is not the end solution and that we must avoid a 'dieselgate'-like crisis in reputation. He has been a leader in LNG and is working on a 'green certificate' that goods were transported using cleaner energy.

Rudolf Huber is a cheerleader for LNG. He argued for talking more coherently about the cost of renewables. He believes that biogas and synthetic methane will be as cheap as other fuels are today. The challenge is figuring out ways to pay for the infrastructure.

Gabrielle Walker advised that the strongest narratives include both facts and a great story. She asked about areas that the industry must pay close attention to. The answers included, leakages, carbon capture, infrastructure, vessels, taxation, and to ensure that regulations and access/incentives are predictable.

A participant suggested that rather than focusing on greenhouse gas the industry begins to focus on pollution and health, especially in India and China.

A final piece of advice: Get some self-confidence. Gas is not petroleum.



Jasfestons was to

The objectives of these sessions was to

learn about ideas, concepts and research that will impact the gas industry, representing both opportunities, challenges and threats.

explore impact on the industry's value chain

discuss challenges and opportunities in utilizing the commercial end environmental benefits gas offers.

Knowledge Labs

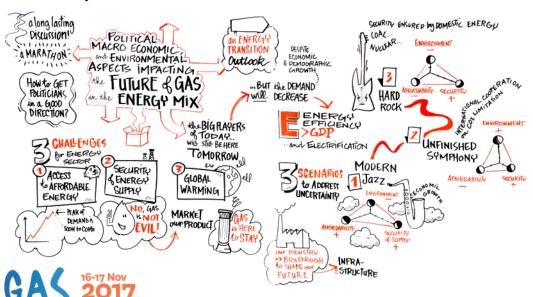
Political, macro-economic and environmental aspects impacting the future of LNG in the energy mix

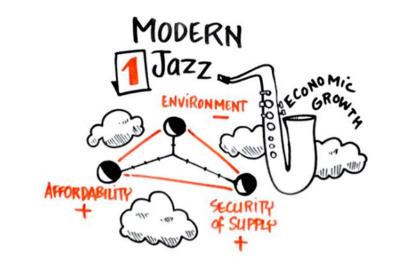
Whether or not COP21 will ultimately rule out the direct use of LNG as a fuel, or if gas and renewables will be frenemies, robust policymaking is required to address the trade-offs between energy security, energy affordability, and environmental impact mitigation.

Gas and renewables can be frenemies - Tjerk de Vries, Executive Vice President and Regional Director, DNV GL

Robust policymaking to address the Energy Trilemma: the trade-offs between energy security, energy affordability, and environmental impact mitigation - Didier Sire, Senior Advisor to the Secretary General and Head of Sectoral Programmes, World Energy Council

Moderated by Rudolf Huber, Chairman, LNG Austria









Power generation and energy storage: the role of LNG in the Future Energy Mix

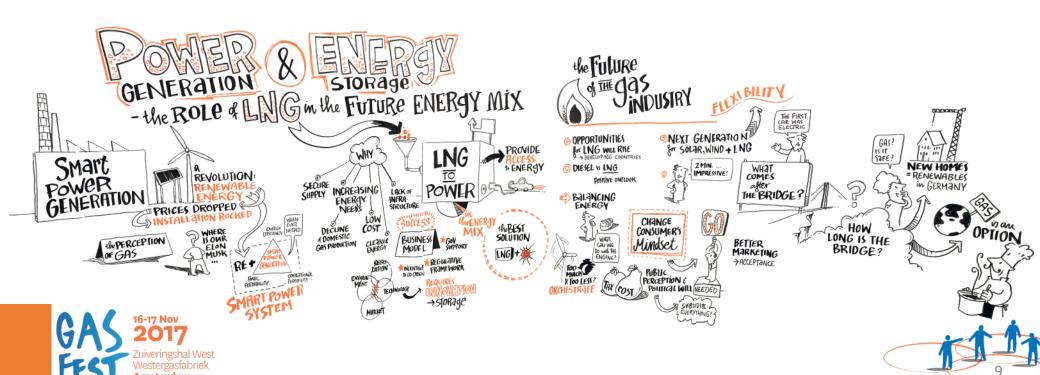
To maintain its relevance, the gas industry must prepare to face transformative conditions, from gas storage and batteries to future scenarios on the usage of gas in power grids. How can the gas industry leverage new technologies as opportunities to maintain its relevancy for the foreseeable future?

Why can "LNG to Power" be part of the energy mix? - Dominique Verians, LNG Director, Gas Chain, ENGIE

Smart power generation with gas - Niklas Wägar, Director, Technology and Product Management, Wärtsilä Energy Solutions

Moderated by Peter van Buuren, CEO, Hamina LNG





Making shipping a little greener: the role of LNG in the future shipping fuel mix

From introducing LNG to new markets to proactively help policy makers shaping a framework for LNG as a maritime fuel, the industry can provide solutions that will help the shipping industry reach its ambitions to improve the fuel efficiency and carbon footprint of its vessels.

Why LNG is the preferred marine fuel - John F. Hatley, PE Director Market Shaping, Gas Initiatives, Wärtsilä Marine Solutions

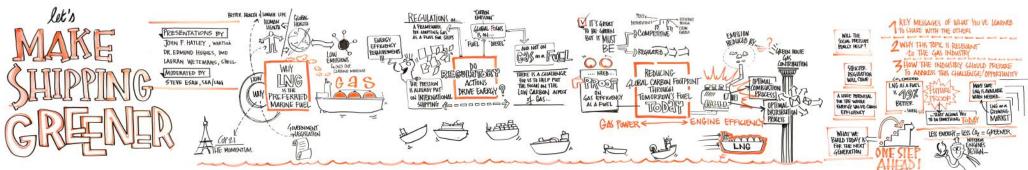
Recent regulatory developments at IMO to address emissions from international shipping: providing the framework for the use of LNG as a fuel - Dr. Edmund Hughes, Head, Air Pollution and Energy Efficiency, Marine Environment Division, IMO

LNG for maritime transport: Reducing the global carbon footprint through tomorrow's fuel today - Lauran Wetemans, GM, Downstream LNG, Shell

Moderated by Steve Esau, General Manager, SEA\LNG Ltd











Alternatives and supplementing energy forms to LNG

In addition to the traditional forms of energy used for industrial and commercial purposes, there exist other clean energy options; from gas storage to batteries to biogas. They all have their advantages and limitations, and existing solutions might complement the use of LNG to provide cleaner energy to the many. Yet, is it an issue of scale that keeps LNG the front-runner amongst these options? In this Knowledge Lab we will explore some of these options, including batteries and biogas.

How to handle energy storage? Gas storage or batteries – are they competing or not? - Kenneth Engblom, Director, Sales & Marketing of LNG Infrastructure, Wärtsilä Energy Solutions

Made in circular economy: Green is the new black - Ville Pesonen, Sales Director, Gasum

Propane as an alternative storage option - Hans Verhoeven, Independent energy industry expert & Chairman Dutch LPG Industry Association (VVG)

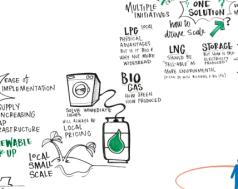
Moderated by Dr. Jacob Klimstra, Senior Energy Specialist, Jacob Klimstra Consultancy











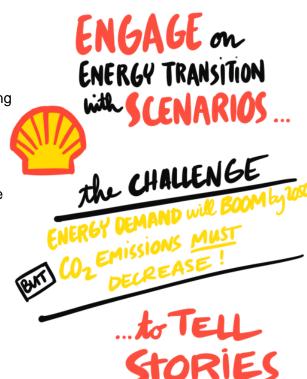
Keynote – Stijn van Els

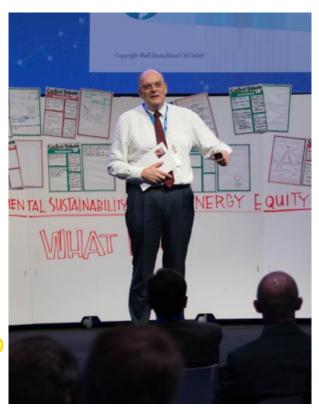
Stijn van Els, Chairman of Shell Germany, provided inspiring insights to increase success in the energy transition ahead.

After an engaging review of what the energy transition is, and what it means to various stakeholders, Stijn covered many of the key challenges in the future, including the increase in the global population and individual use of energy. Stijn shared scenarios Shell uses to have conversations with stakeholders, and to plan for the future.

The first, "Winning the Marathon", consists of a stable population, resilient and growing economy and investment in new technologies. In the second, "Slowing Momentum", the German population declines due to ageing and a lack of immigration, there is lower urbanisation, less EU cooperation, and increased resistance to new technologies.

These two scenarios could lead to different energy use outcomes with implications for gas consumption. The audience learned the importance of focusing on key drivers for change at a time when the industry is evolving.









Keynote – David Bodanis

David Bodanis shared the insights gained from his extensive study of Albert Einstein. There are valuable lessons for all of us in the very human mistakes made by the person David calls "the greatest genius of all time". Our world, with its uncertainty and rapid change, is surprisingly similar to the one Einstein lived in.

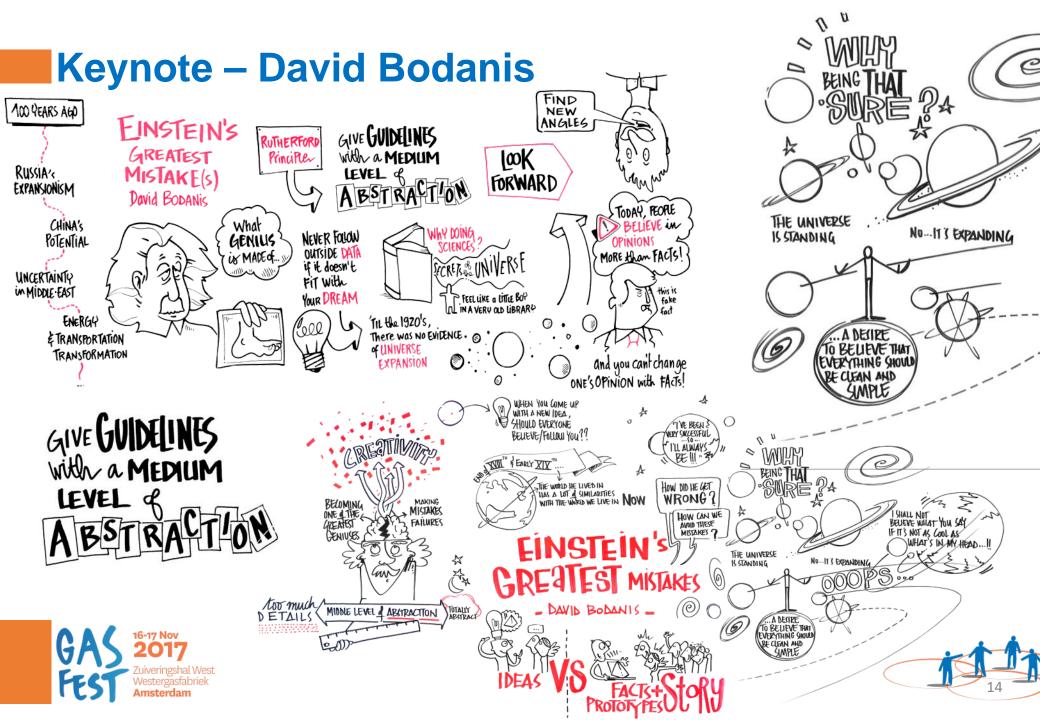
- Our thinking should be developed in a safe space before it is ready to share with others.
- We must remain open to new ideas, research and other ways of thinking that challenges our own. It is easy to become too protective of ones own ideas or to try to fit new ideas within our existing and restrictive ways of thinking.
- To convince others to change their minds we have to appeal to their emotions as well as their heads













Unlocking opportunities for LNG-to-power markets

Group 1

How can we make a transition to a new fuel and how can we communicate the why and how so that individuals, organizations and policy makers can understand the real importance of our challenge? Our goal, from now on, will be to create a storytelling experience, a narrative that is strong enough, that has a soul but is based on facts and can move all actors towards the same direction. We believe that the shipping industry is a very good example, a best practice we could build on.

How to make the transition to LNG and best communicate its benefits. "The sun doesn't always shine; the wind doesn't always blow."

We suggest a concerted effort to coordinate and amplify positive messaging from industries that are heavy users of gas. The story of gas is complicated. We need to clarify the issue and tell the story to diverse audiences, especially the youth, in new ways.

Next Steps

Create a working group of the most prominent stakeholders in both power generation and shipping. Then find a spokesperson with the right passion to bring this message to the publics.





Unlocking opportunities for LNG-to-power markets

Group 2

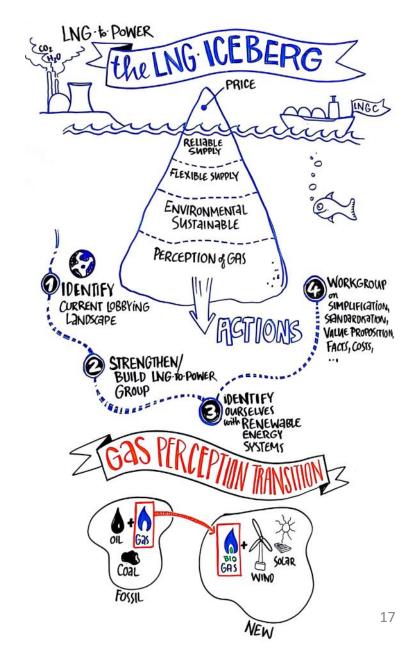
When the wind is not blowing and the sun is not shining, where do you get the power from? We need a sound alternative that is also sustainable from an economical point of view.

How to break through the barriers to running power plants on gas. . "It's not oil and gas. It's oil and coal. Talk about gas as a renewable."

The #1 problem is price. It we can't make the price economical, no one will buy gas. We must get the prices down throughout the entire value chain.

Next Steps

Tap into existing lobbying groups to better understand what is already being done today. Possibly, create a new working group made up of people from this group to systematically communicate to government, regulators and the public about why LNG is beneficial and needed

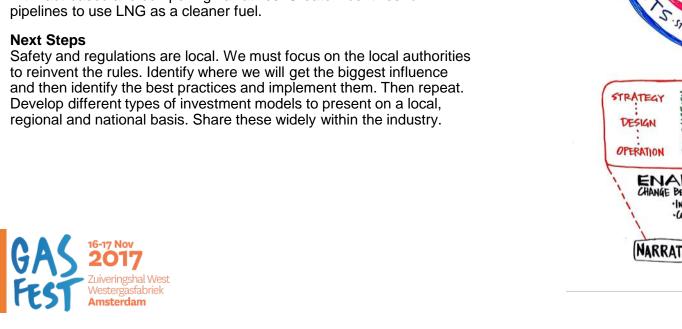


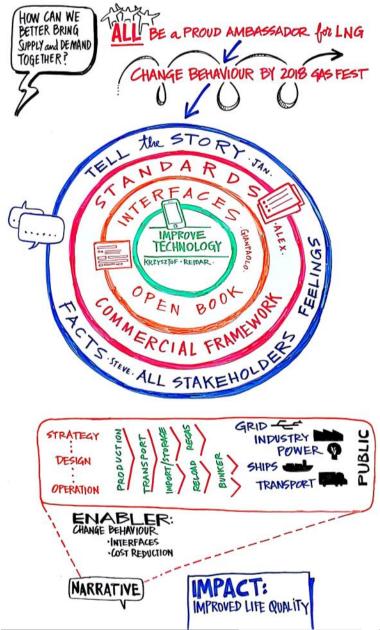


Group 1

We need to communicate better with our stakeholders and we need to have a compelling narrative. We need to build it with stakeholders not impose it on them. At the moment the whole value chain doesn't work well together. At the moment the whole value chain doesn't work well together. We need to simplify and standardise to work together in an open and transparent manner.

Make it easy for new users to adopt LNG. Every solution today is 'custom.' Make our messaging consistent about best practices, safety with fact-based and compelling narratives. Create incentives for pipelines to use LNG as a cleaner fuel.





Group 2

For industry, we need to create fast, safe and easy solutions to reduce costs and make it easy for new users to adopt them. This addresses the problem that every solution today is a "custom" solution. The industry should convene a roundtable of industry players--the sponsors of this event: LNG companies, transport companies, tech companies and customers--to explore opportunities and propose solutions.

For society, we need to use industry bodies to educate stakeholders about 1) what works, best practices, safety of LNG, and 2) fact-based narratives. In particular, we need to create models to incentivize LNG where pipelines are not a solution and create models for tax differentiation at national level that incentivizes LNG as cleaner fuel.

Create a compelling narrative to better communicate it to our stakeholders. Find initiatives in which the value chain can work well together.

Next Steps

Become proud ambassadors for LNG and change our behavior by 2018 Gas Fest. We need a common language, better communication and transparency. Work on our story, the standards, and interfaces.





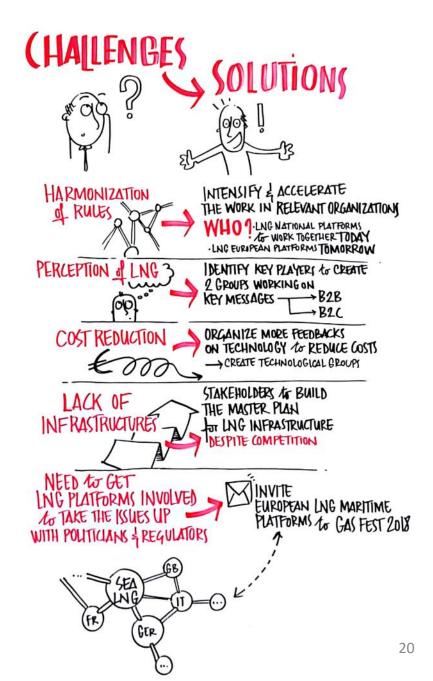
Group 3

We as a group believe that we need to get into concrete actions, starting by facing our challenges. We need to get our LNG national platforms to cooperate, to create a group with key planers to work on key messages in order to improve perceptions of LNG within the industry and the public. We will need to create technical groups in order to achieve cost reduction.

Harmonize rules, usage, bunkering, discharge and imports. LNG national platforms must coordinate on key messages to improve the perceptions of LNG within the industry and the public.

Next Steps

Meet with regulators in Germany on Tuesday! Segment B to B customers, like power plants and industrial consumers, and B to C clients, like shippers who want bunkering. Start with B to B because of the large volumes. To reduce the cost of LNG, create a technology groups and work on new standards that will enable LNG to be distributed to customers at a reasonable cost. Greatly expand the invitations to Gas Fest 2018.





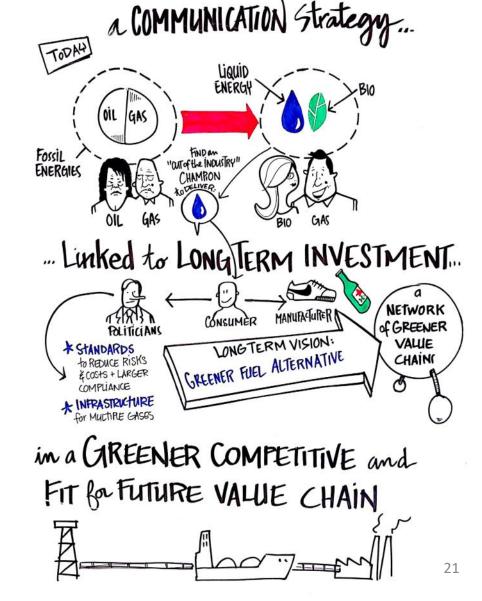
Group 4

Develop a communications strategy to decouple oil from gas and link gas to renewables and biogas. The goal is to project a long-term vision of LNG as a greener fuel alternative; the message to users, investors and banks is that LNG is a long-term investment, fit for future network of value chains. This reduces the perception of risk of stranded assets and of a new fossil fuel "lock-in". The goal is to structurally influence consumers to have a positive view of gas, and in particular leverage branded manufacturers (Heineken, Unilever) who feel consumer pressure. With this positive vision, standardization to reduce costs and risks will follow.

Decouple our communications from 'oil and gas' to move it to 'renewables and biogas.' Develop LNG vision as a greener fuel alternative in messaging to investors and banks.

Next Steps

Influence consumers to have a positive view of gas and then collaborate with manufacturers who feel consumer pressure.





Reducing emissions in shipping

Group 1

The public opinion is influenced more by feelings and less facts. We believe it's important to get the feelings and facts in place in a balanced way.

Bringing the facts to our stakeholders will make it obvious that they do have the power to choose the more sustainable alternatives.

How to drive the changes needed in LNG, and who pays?

We believe there is a double green effect here: an opportunity for green labeling and a green dollar effect for operational efficiencies. The question of who pays is important. At the end of the day, the owners will have to pay for these changes and they will be the main beneficiaries.

Next Steps

Create a green, greener, greenest label. "The greenest transport industry." Then create a marketing push to entice consumers to pay a little more for the green benefits.





Reducing emissions in shipping

Group 2

"LNG is cool! LNG NOx your SOx off"

Reducing emissions is really about letting the world know what this is about – the facts.

Target the stakeholder groups with specific – and cool – messages, tailored exclusively for each group.

We suggest targeting a variety of stakeholders, especially youth, to focus on the positives of LNG. Each person in this room needs to remember the messages to transmit, with a focus on the urgency and the need for gas.

Next Steps

Whoever is closest to the different stakeholders is an influencer. We need to flesh out the messaging, the process, and how we listen and what we are asking for. The messages must be consistently and clearly communicated.





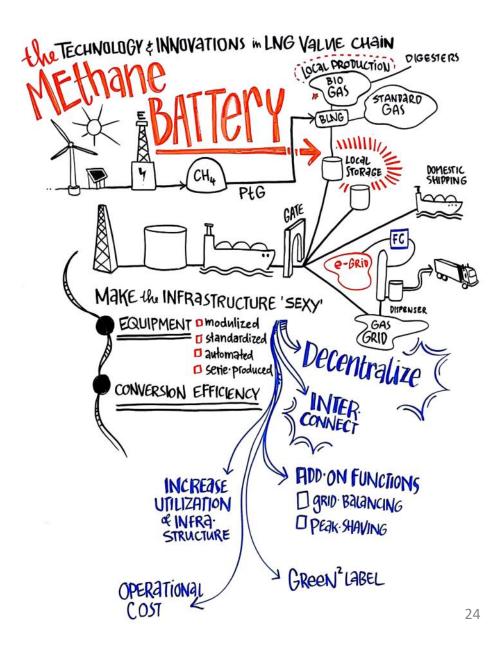
Technology and innovations in LNG value chain

Instead of focusing on very expensive large scale solutions, we can focus on smaller solutions that are decentralized and connected to other energy sources such as Biogas as well as the electrical grid. This will not only increase our utilization but have add on benefits such as grid balancing and peak shaving.

Bigger is not always better and cheaper when it comes to infrastructure. We can do much more for LNG storage, whether for gas or the electric grid. Methane batteries can be bidirectional. Rather than focus on expensive large-scale solutions, we can focus on smaller solutions that are decentralized and connected to other energy sources, like biogas and the electric grid.

Next Steps

Connect different grids: biofuel LNG infrastructure gives off twice as much CO2. If we can turn it into methane, we can reduce our CO2 footprint. Let's choose a pilot and prototype this on a small scale. We don't have a grid and economic model for biogas.





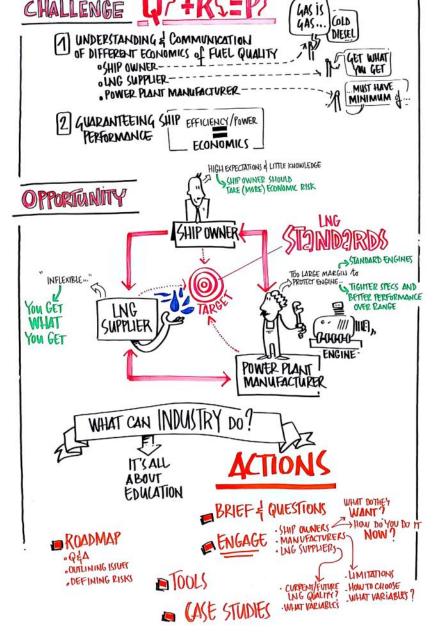
Quality of LNG

The main challenge is the relationship that higher Quality with lower Risk will always result in higher Price. Combining this with the current lack of an LNG quality standard, the power plant manufacturers trend to building toward the lowest common standard and deliver less efficient engines to the ship owners. They need to engage with the Ship Owners, LNG suppliers to outline issues, define risk and build a roadmap for the future of LNG Quality.

Higher quality and lower risk will result in higher prices. Better quality of methane is our opportunity. Currently we lack LNG quality standards. Perhaps more urgent and addressable, is the misinformation and need for education among ship owners and LNG suppliers. We must also address the future quality of LNG.

Next Steps

Create a brief that defines the risks and issues. Then have a roadshow of Q & A and training for ship owners and LNG suppliers. Then listen to what our customers need and want and address those as an industry.





Perception of gas, legislation and regulations

Legislation will only be in our favor if the gas industry has a good reputation.

"Perception resides in the mind of the public and the public's mind is reflected in the politicians." This will have a positive payoff as reduced risk increases investment.

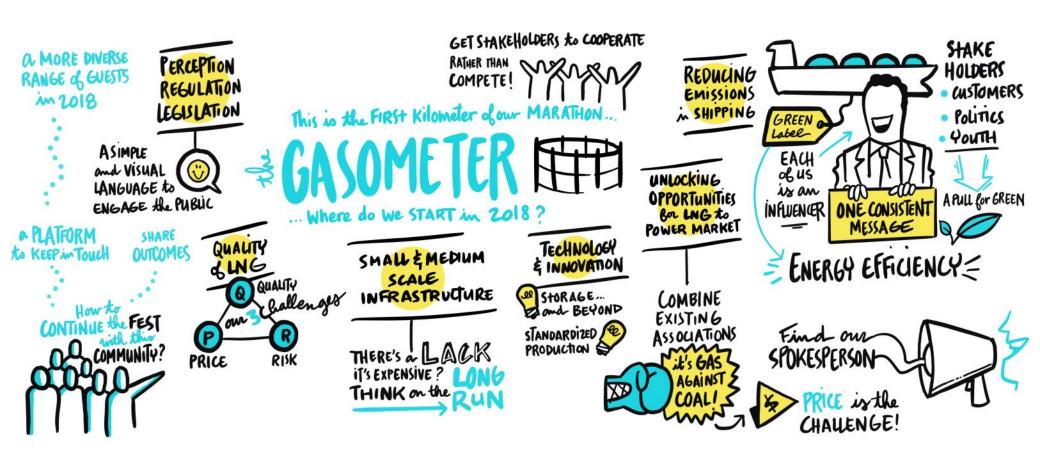
Next Steps

Map our stakeholders in two categories: earth benefits (CO2) and human benefits (lower NOx and SOx emissions for cleaner air.)





Gasometer









Closing - Kimmo Rahkamo

Kimmo Rahkamo, CEO of Skangas, closed GasFest 2017 by thanking the participants for contributing to an enlightening and rewarding two days.

Kimmo summarised the two days by saying that great progress was made towards the gas industry contributing to solutions for the "trilemma" of energy security, energy equity, and environmental sustainability.

He brought GasFest 2017 to an end by saying that these efforts must continue, as we move to the difficult task of implementing the ideas that were generated.







Way Forward

Actions targeting industry

- Standards for quality of LNG, production processes and costs
- Create workgroups on sustainable price: if it is not economical it will not happen
- Improve infrastructure adding new functions (ex. grid balancing and peak shaving), connecting different grids and increasing use to reduce operational costs
- Work with experts from the field of renewable energy and identify ourselves with renewable energy
- Map industry partners, associations, and stakeholders to determine what is already in progress, how to tap into it to gain the biggest impact, and where further collaborations are needed
- Informal platform for industry stakeholders to increase transparency

Actions targeting society

- Strategically influence public opinion through consistent communication that focuses on the benefits of LNG
- Develop simple language and captivating storytelling about LNG as a long-term greener fuel alternative
- Each of us must be proud ambassadors. In addition, identify a credible outsider who will tout the benefits of LNG.
- Create and better communicate the different economics of fuel quality among important players: ship owners, LNG suppliers and power plant manufacturers and other new users, such as hospitals

- Develop training and powerful, consistent messaging for all stakeholders
- Bring supply and demand together to reduce costs and improve understanding by including the entire value chain

Actions targeting regulations

- Use consistent messaging and facts to influence politicians and regulators about the benefits of LNG
- Create and pilot favourable investment models at the local, regional and national levels and share them widely within the industry
- Develop dedicated engagement and communication programs for local authorities
- Harmonization the rules of usage, bunkering, discharge and imports

And the red thread is ... let's meet again, all together, at Gas







Knowledge Wall









16-17 Nov **2017**

Zuiveringshal West Westergasfabriek **Amsterdam**





















