



Live service Transfer

Supporting Covid-19 impacted customers
during network replacement

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SGN

Your gas. Our network.





Problem Statement

COVID 19 has provided GDNs the opportunity to assess a 30 year customer friction of isolating the gas supply to transfer or relay their service as a result the mains replacement programme.

SGN asked “how might we” do this?

1. Avoid **accessing the customers property** where possible or may not be granted, or is in appropriate when customers are ‘shielding’. *(in emergency’s we use Full PPE and have a right of entry to protect life & Property)*
2. GDNs had no **technically viable means** *(to a tolerable risk level)* to transfer or renew the existing service without accessing the property and performing an purge & relight.
3. There is no **safely defined process**, or **fully risk assessed** method to transfer the service live on to the new live inserted PE main.
4. Developing **a method for the short, medium and longer term**, timeliness of the solution should be measured against the level of risk mitigation offered.



Project set up

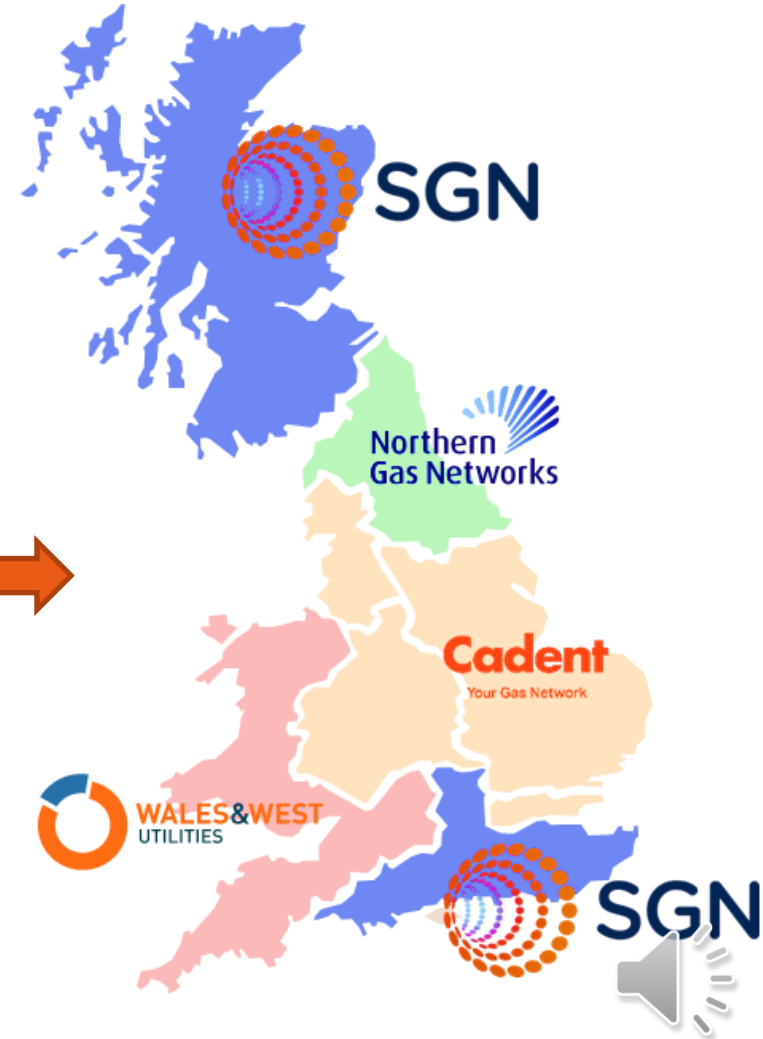
The aim of this project was to *“conceptualise a method of quickly and safely transferring services live without entering customers’ homes or disrupting supply”*.



In Partnership with



Joint GDN Taskforce



Working together: 30+ ideas and variations conceptualised and reviewed

A grid of 30+ presentation slides, each with a red border, detailing various gas installation techniques. Each slide includes a title, a list of steps or key points, and illustrative diagrams or photos. The slides cover topics such as:

- Bottled Gas Live Transfer**: Methods for safely transferring gas from a cylinder to a system.
- MicroStop**: A technique for isolating sections of a gas line during work.
- Bottle Gas connection**: Various methods for connecting gas cylinders to a network.
- Copper and Lead Services**: Techniques for working with these materials in gas service.
- Connection options/Ideas**: Creative solutions for connecting pipes in different scenarios.
- Where house access is needed only for purge and right**: Strategies for minimizing house access during gas work.
- Duo-Tap25**: A specialized fitting for dual gas supply.
- Drill through existing top tee (Steel connections)**: Methods for creating new connections through existing infrastructure.
- Create a 20 / 25 mm to 32mm top tee**: Techniques for upsizing or changing pipe sizes at a top tee.
- For internal meter/ECV, Serviflex etc where house access needed & work is urgent**: Urgent solutions for internal meter work with limited access.
- Live Transfer of 20/25mm PE Pipe**: Methods for transferring gas through polyethylene pipes.
- Electrofusion hotplate welding**: Using heat to fuse polyethylene pipes together.
- For internal meter/ECV, Serviflex etc where house access needed**: Another set of solutions for internal meter work.
- PE Shims**: Using shims to facilitate pipe connections or repairs.
- Self cutting hose connector**: A device for quickly connecting hoses.
- Steel service transfer idea pup connection**: A pup connection method for steel gas services.
- Insertion pipe won't go around sharp bends**: Solutions for installing pipes in tight spaces.
- Live Transfer of Steel**: Methods for transferring gas through steel pipes.
- Bottle Gas connection**: Another variation of gas cylinder connection.
- Create a 20 / 25 mm to 32mm top tee**: Another variation of top tee creation.
- Encapsulation Device (Project Zero) Steel or PE**: A device for encapsulating gas lines during replacement.
- Encapsulation Device (Project Zero)**: Detailed look at the Project Zero encapsulation device.
- Encapsulation bag containing bypass connection**: Using bags to isolate and bypass gas lines.
- Pierce Band-saw**: A technique for cutting through pipes with a band saw.
- Steel Direct transfer**: Direct transfer methods for steel gas pipes.
- For internal meter/ECV, Serviflex etc where house access needed**: Another set of solutions for internal meter work.
- Encapsulation Solution**: A comprehensive solution for encapsulating gas lines.
- Bottled gas – at house**: Strategies for gas supply at the house level.
- Open Cut Option**: An open cut method for gas installation.
- Bottled gas – at main**: Strategies for gas supply at the main.
- PE option (external)**: External polyethylene pipe options.
- Live Transfer of 32mm PE Pipe**: Live transfer methods for larger diameter PE pipes.
- For internal meter/ECV, Serviflex etc where house access needed & work is urgent**: Urgent solutions for internal meter work.



Project Stakeholder engagement

“Collective intelligence” approach being taken - all GDN participating on chosen strands

The image displays a grid of 20 thumbnail images, each representing a document page from a project stakeholder engagement process. The thumbnails are arranged in two rows of ten. Each thumbnail shows a document header with a logo and title, followed by text and some diagrams or charts. The documents appear to be structured as follows:

- Row 1:**
 - Thumbnail 1: Introduction: Review of Ideas
 - Thumbnail 2: Responses to individual Questions
 - Thumbnail 3: Responses to individual Questions
 - Thumbnail 4: Responses to individual Questions
 - Thumbnail 5: Responses to individual Questions
 - Thumbnail 6: Responses to individual Questions
 - Thumbnail 7: Responses to individual Questions
 - Thumbnail 8: Responses to individual Questions
 - Thumbnail 9: Responses to individual Questions
 - Thumbnail 10: Responses to individual Questions
- Row 2:**
 - Thumbnail 11: Responses to individual Questions
 - Thumbnail 12: Responses to individual Questions
 - Thumbnail 13: Responses to individual Questions
 - Thumbnail 14: Responses to individual Questions
 - Thumbnail 15: Responses to individual Questions
 - Thumbnail 16: Responses to individual Questions
 - Thumbnail 17: Responses to individual Questions
 - Thumbnail 18: Responses to individual Questions
 - Thumbnail 19: Responses to individual Questions
 - Thumbnail 20: Additional Points



Feeding information from technical, Policy / Legal, environmental conditions, behaviours, training, and “other” Points of View.





Options

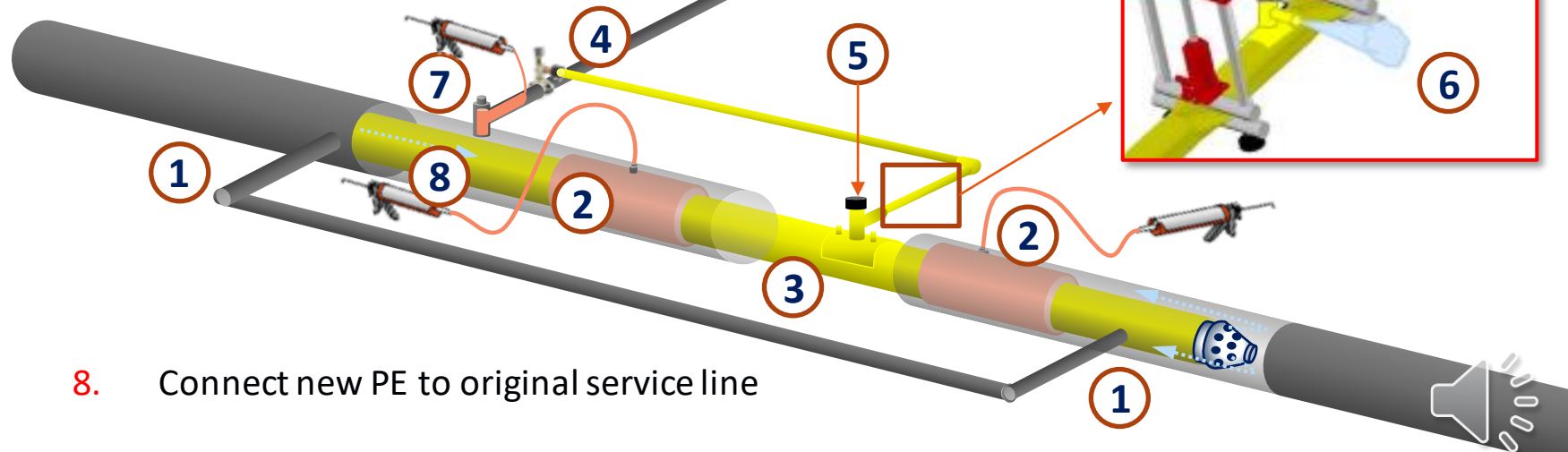
- Short-term
- Interim
- Permanent



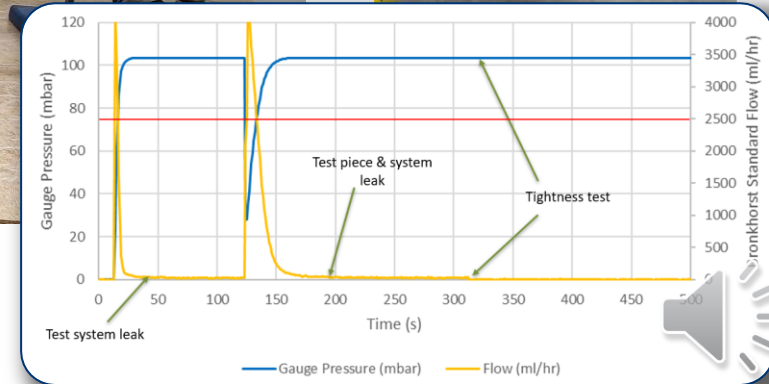
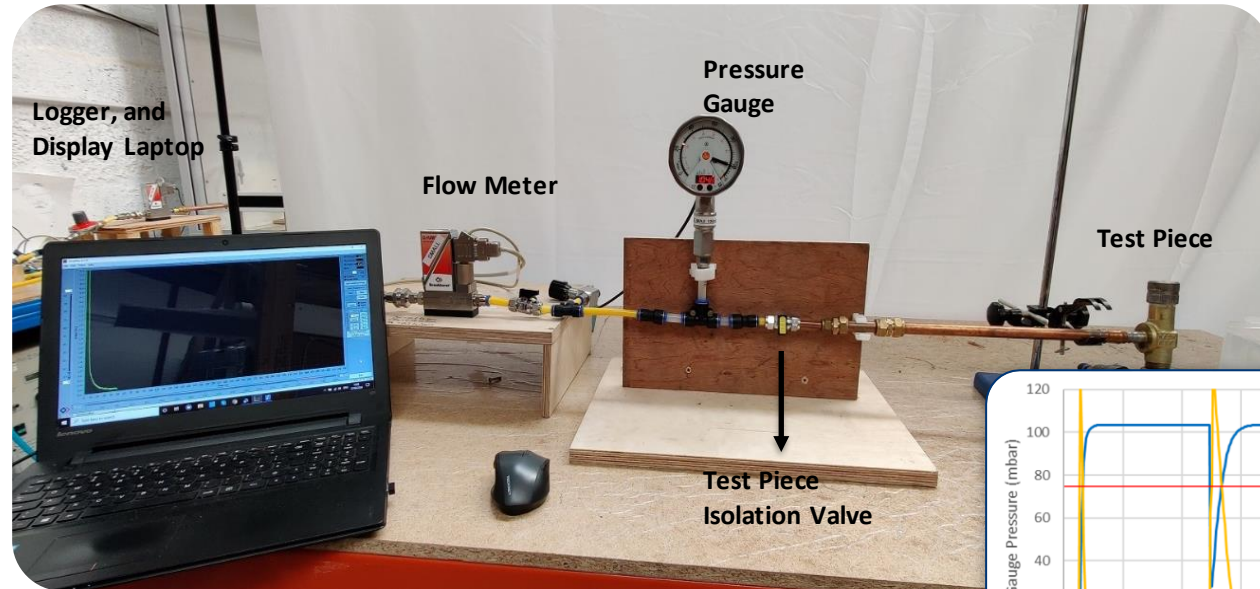
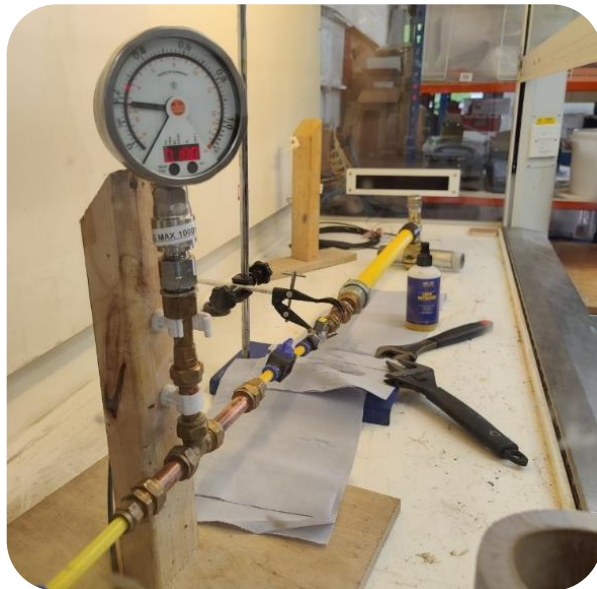
Basic Transfer Process Overview

Technically can be achieved by and now being supported :

1. Above ground bypass (may be needed but site dependant)
2. Foam off section to connect PE service
3. Precision cut iron (avoid under cracking)
4. Punch Tee on steel service
5. Top tee on inserted (window cut)
6. Sequential Squeeze off and purge
7. Isolate original service and reconnect



Safety Assurance Testing (Steel & PE options)



Using Riser transfer systems for services



Status

MicroStop already tested, field trailed and approved for this use up to 2" minimum 125mm above ground exposed pipe required. Reviewing fittings for below ground use and MiniStop fittings for $\frac{3}{4}$ " services.



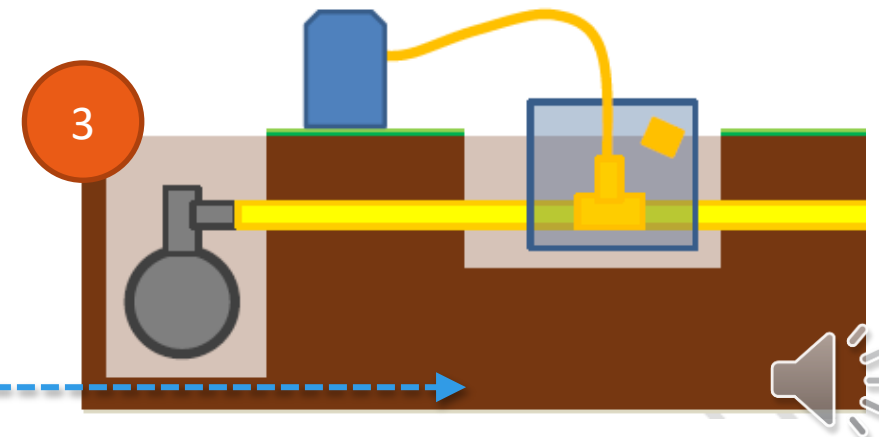
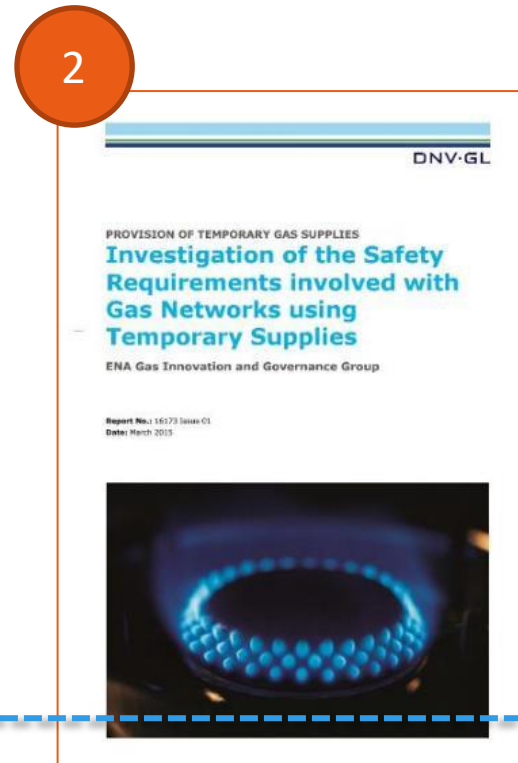
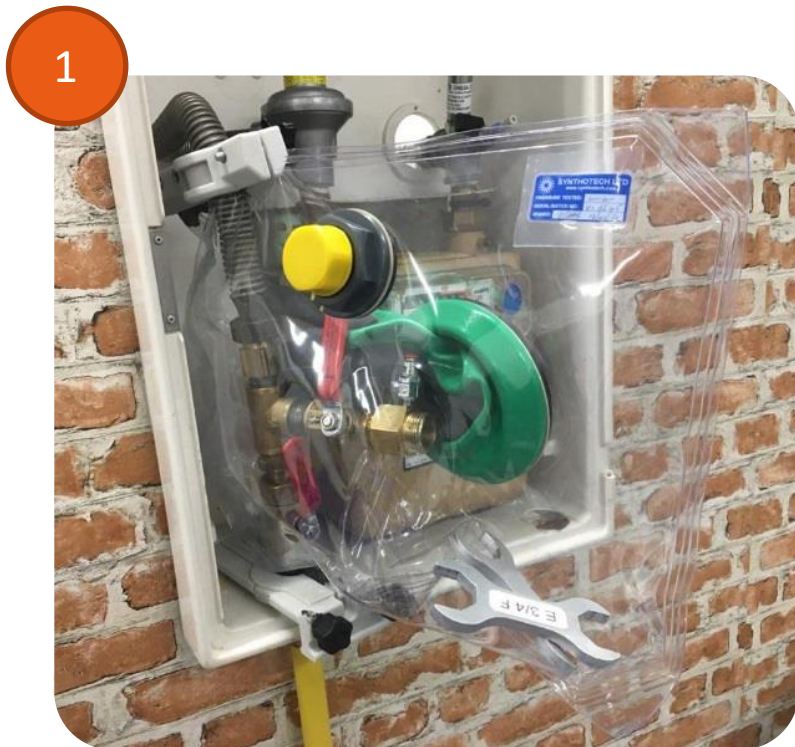
ServiBag & ServiSwap

Encapsulation Solutions

1. NGN ServiBag project designed to deliver a proposed encapsulation solution.
2. NGN also commissioned SoftPANG 2 to review bottled gas options to aid this process
3. ServiSwap project (*continuation of ServiBag*) combines the two elements to potentially deliver a in line service replacement option



SYNTHOTECH
innovative engineering



Directional Bagging System (DBS)

Mueller Gas' DBS system, combined with Bottled Gas this will enable the customer's maintained during service renewal



Status

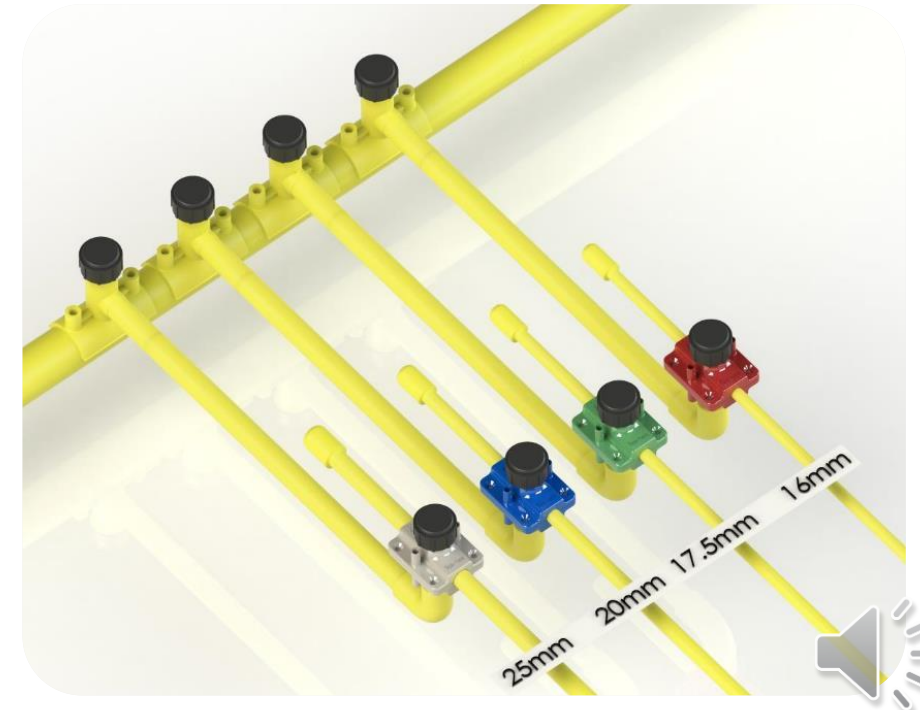
- DBS potentially could be an ideal solution for dead insertion mains replacement
- Needs further investigation, assessment and assurance testing under G/23
- Designed for $\frac{3}{4}$ " steel pipe and above.
- Demonstrable approvals and value adding use cases provided from GTI used on over 100,000s of services in the US since 2008.
- 12 minute process overall



Small Diameter permanent PE fusion Tee (Tee-Nee)

Status

- Developed in partnership with Engineering design team at Steer
- Concept solution needs developed further to test and productionise
- Supply chain engagement to develop prototype fitting



PE bonded Shims

Cadent
Your Gas Network

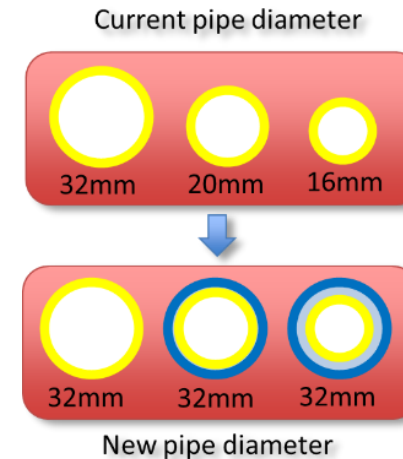


Current status

Use of shims to increase the pipe OD, allowing a tapping tee to access the pipe under pressure.

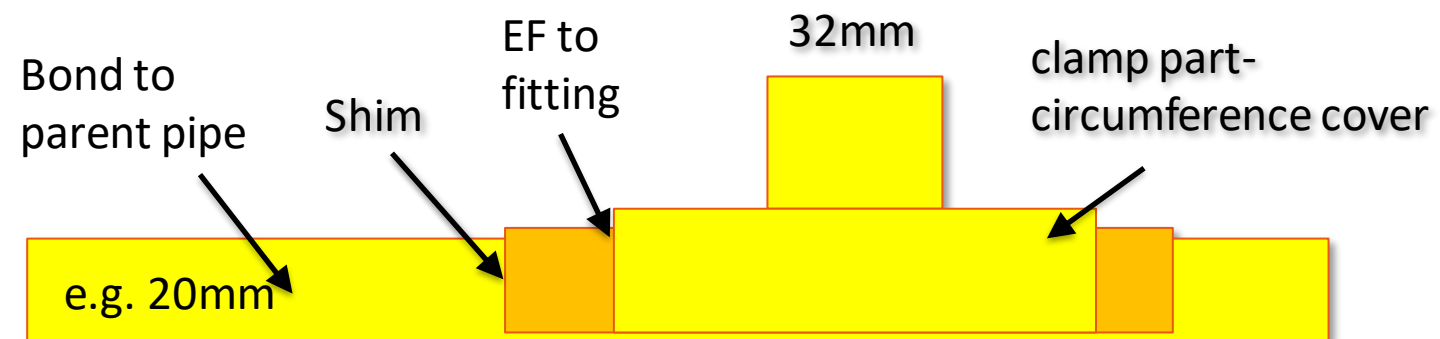
Shims - the problem

- For PE services 16 to 25 mm diameter
- Bonding method to considered:
 - Electrofusion not suitable 25 mm and below
 - Solvents no longer used due to COSHH
 - PE is not easy to bond as it is unreactive
 - SGN Developing based on CADENTS NIA PRISM project

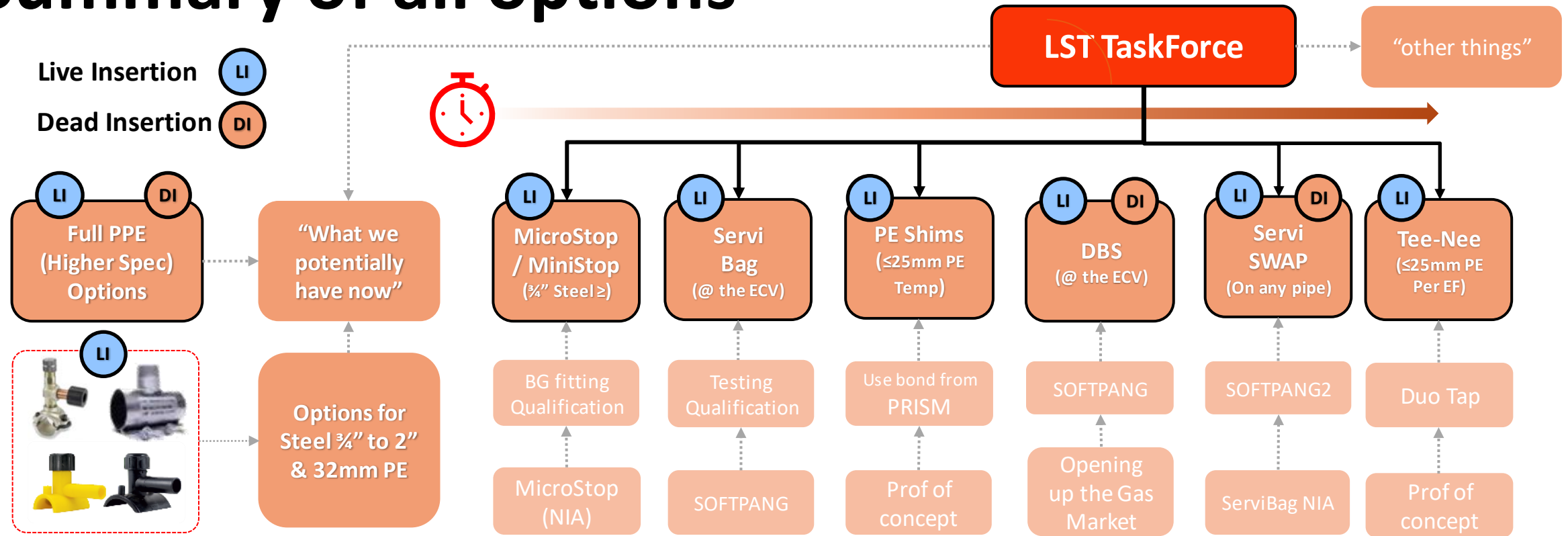


Actions

Working with ALH on bonding methods applicable for other solution, fittings sent for testing ALH bench testing 20 fittings to assess suitability & strength.



Summary of all options



Project partners



Conclusion

Highly collaborative (sprint run type) project, joint GDN taskforce, engaged with suppliers to deliver solutions for the UK gas customer impacted by Covid risks/guidelines in shielding or self isolation.

Short term options as highlighted

- Technically viable solutions available, being tested and under approval reviews
- Solutions risks can be managed appropriately through ALARP to an acceptable level.
- Continual policy review of solutions to ensure the best proposed solutions to be utilised where they can be.

Medium term options under review

- Cross GDN task force exploring more suitable solutions that can be developed for use.
- Further development of identified technology's to minimise risk utilising higher TRL equipment.

Longer term options for development

- R&D process to design a new solution which can deliver a permanent solution without re-work.



Thanks

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