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Engage Victoria
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Re: Victoria Gas Substitution Roadmap Consultation

To the attention of the consultation assessment team

We thank the DELWP for the opportunity to provide our feedback on the consultation paper for Victoria's gas substitution roadmap. Our submission focuses on the domestic and residential market gas substitution options for space heating and potable water heating with all-electric solutions as the most beneficial way forward, for existing and new urban developments.

STIEBEL ELTRON Australia has been operating since 1995 and is a subsidiary of STIEBEL ELTRON International - a German company established in 1924 and a world leader in electrical thermal comfort solutions for water heating, space heating & cooling and ventilation. For over 44 years we have been at the forefront of heat pump design and innovation and are the leading manufacturer in Germany in this industry, making us one of the top companies in Europe for building services based on renewables. Our domestic and commercial heat pumps are among the best in the market, from performance testing and validation in the field.

In Australia we provide off-the-shelf heat pump packages for space heating & cooling and hot water for domestic and non-domestic applications. Our systems offer local and remote monitoring and control, suitable for connection to smart energy management systems, some of which use on-site PV energy generation to provide optimal savings for end-users.

STIEBEL ELTRON has made a large investment in Australia over the last 26 years, both financially and in the development and training of staff, transferring years of experience in R&D and knowledge of established performance standards from the EU into the local market. We are aligned with various national and international associations and companies, with the purpose of facilitating the exchange of ideas, information and progress involving sustainability and innovation, including smart energy management. Through our involvement in industry groups, we have been contributing to and supporting Australian standards for over 15 years.

STIEBEL ELTRON is an internationally recognised manufacturer of quality thermal comfort systems.

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Questions for Stakeholder Feedback

Gas decarbonisation pathways

For each pathway

- **What are the key benefits, risks, and potential impacts on various end-users, on energy affordability, safety, security, reliability and equity?**

We believe it is necessary to differentiate the use of natural gas in domestic vs. non-domestic settings as this will add another level of clarification as it relates to each pathway.

The efficacy and viability of solutions for industrial and other localised large-scale processes will be different if attempted on distributed energy networks, specifically urban natural gas reticulation.

In addition, it is important to differentiate between existing and new construction, where we later conclude for all new developments to be gas-free without extending or creating urban gas infrastructure.

Domestic/residential urban gas reticulation

We see no real benefits, only a very-short term relief with medium- and long-term negative outcomes, in attempting to substitute/blend gas with either biomethane or hydrogen.

As much as the DELWP is looking at all possible options with no prejudice and a "no regrets" approach in an attempt to be open and objective without pre-emptying results, we believe that the information already available in the public domain, some of which is included in the issues paper, shows there is no case in pursuing these.

The main reason for this is that even if these options were available for immediate substitution and full utilisation by gas heaters, which they aren't, they would always be significantly less efficient than electrically operated heat pumps for space heating and water heating and significantly less efficient than electric-boosted solar water heaters for water heating.

The much higher heating efficiency of these other solutions together with the inherent inefficiency of gas heaters, means that solar water heaters and heat pump solutions consume comparatively much less energy to achieve the same heating outcome. They will also generate much lower GGE than conventional electric water heaters and depending on how much on-site electrical energy is available via PV systems and how much renewable electricity there is in the grid, their GGE may be comparable or even lower than those of gas water heaters. This the reality in other areas, such as the ACT and TAS, where gas water heating leads to both higher energy consumption and higher GGE than solar-electric and heat pump water heaters.

This is already understood and summarised in the consultation paper at the very beginning when describing Victoria's Climate change strategy and then on the section on *Electrification* pathway. In both instances it is acknowledged that it is particularly cost-effective to do this -replace gas heating

with solar or heat pump alternatives- for homes installing PV systems. This is being incentivised by some programs such as Solar Victoria's solar hot water rebate[1] for homes wishing to replace gas water heaters with solar or heat pump solutions. The eligibility criteria initially required homes to have a minimum of 2.5 kW of installed solar PV system. This has now been removed as it "also allows freedom of choice if a household wishes to move away from gas appliances". The fact that solar and heat pump water heaters consume much less energy than a gas water heater, plus the removal of the gas supply charge ($200-$300 per year), makes this a great savings option for end-users.

Looking at the other pathways, the paper initially indicates that hydrogen can be a substitute, either by blending or complete replacement and only mentions as drawback being currently more expensive than gas, yet "significant cost reductions are predicted within the next few years".
Further ahead when discussing the *Substituting natural gas with hydrogen* pathway, this is expanded on and several claims are made that give the impression of its potential without the difficulty and disadvantages to end-users than what it would actually carry.

These disadvantages have been laid out by several voices[2,3,4,5] in contrast to what is possible right now by the combination of electrification with an increasing renewable energy grid component and energy-efficient electric heating options; solar water heaters, heat pumps and induction cooking.
Germany, a country at the forefront of energy conservation, energy efficiency, renewable energy use, has already concluded this is not a path to take in their draft contribution to the European Development Plan "Next Generation EU": "An admixture of hydrogen in existing natural gas networks is fundamentally excluded for reasons of energy efficiency"[6]. Michael Liebreich, CEO of *Liebreich Associates*, independent energy analyst, adviser, founder of and contributor to strategic research & consultancy group *Bloomberg New Energy Finance* (BNEF), refers to hydrogen blending in the gas grid for carbon emissions reduction in a more blunt way as "stupidly inefficient" [7].

The following list of difficulties, some of which are acknowledged by the consultation paper, appear to be unsurmountable, making hydrogen blending & substitution inferior to electrification options right from the start:

1. First of all, the need to create hydrogen at a large scale, efficiently, sustainably and for lower cost than renewable electricity
    a. The need to store large amounts of the fuel.
    b. The need for renewable energy as a power source for production.
    c. The need for large amounts of fresh water if obtaining hydrogen via electrolysis.
    d. The need for fuel production costs to be lower than renewable electricity costs, accounting for storage inefficiencies (liquefaction and compression).

[1] https://www.solar.vic.gov.au/solar-hot-water-rebate#approved-products
[2] https://peopleandnature.wordpress.com/2020/10/30/hydrogen-for-homes-is-a-terrible-idea-we-should-fight-it/
[3] https://thefifthestate.com.au/columns/spinifex/hydrogen-in-the-gas-grid-is-a-great-idea-if-you-own-the-gas-grid/
[4] https://reneweconomy.com.au/electricity-will-beat-hydrogen-in-the-household-price-war/
[5] Hydrogen: A decarbonsation route for heating in buildings? https://www.leti.london/hydrogen
[6] https://www.bundesfinanzministerium.de/Content/DE/Gesetzestexte/Gesetze_Gesetzesvorhaben/Abteilungen/Abteilung_E/2020-12-16-deutscher-aufbau-und-resilienzplan/0-Gesetz.html
[7] https://www.rechargenews.com/energy-transition/liebreich-oil-sector-is-lobbying-for-inefficient-hydrogen-cars-because-it-wants-to-delay-electrification-/2-1-1033226

2. The efficiency limitation of burning hydrogen for heat, which at best would be near-100%, compared to solar and heat pump solutions, with efficiencies typically of the order of 200-500% (or more).
3. The need to replace existing pipework infrastructure as high concentrations of hydrogen will lead to degradation via steel and weld embrittlement.
4. The need to replace gas burning equipment in homes, suitable for use with high concentrations of hydrogen.
5. The potential fire hazards and severity of damages from pipeline accidents and leaks.

By comparison, the drawbacks from biomethane seem less severe, yet they share points **1a**, **1b, 1d** and **2**. In this case, **1b** relates to the need for a considerable amount of biomass, which is not readily available. Regarding costs in **1d,** there is the need to process and clean the biogas from which it is derived.

The disadvantages and challenges to electrification with the use of low-energy intensive heating applications are mainly constrained to the generation of renewable electricity and the replacement of gas heating equipment. These are equivalent to **1b** and **4** above.

Expanding the electricity grid is just an inevitability of urban development and if resources are focused on this to do so in a sustainable way, then it will be able to cope with the added heating demands of the population as they transition from gas heating to electric heating.

Since the Victorian government is committed to finding gas substitution solutions, it would appear to make little sense to continue to extend domestic gas networks. It should follow that all new urban developments should be gas-free with electrification as the sole energy provider, assisted by best practices for the construction of thermally efficient buildings and dwellings and by the use of electric appliances of low energy consumption.

The ACT particularly and TAS to a very good extent, are examples where the electricity grid is totally or mostly emissions free, being offset or provided by renewable energy. In these places, electrically assisted heating by the use of solar water heaters and heat pumps is better than gas heating in practically every way; energy-wise, cost-wise, emissions-wise, sustainability-wise.

In fact, it is *not necessary* for the electricity grid to be completely renewable in order for solar water heaters and heat pumps to be fully advantageous over gas heaters. Since these heating technologies are several times more efficient than gas heating, in the case of Victoria what is needed for them to generate less emissions than gas heaters is for an additional 30%-40% of the grid to be renewable electricity.

For example, a 6-star natural gas water heater in Melbourne with 74% overall efficiency, heating an average of 180 L/day by 45°C, will require about 45.8 MJ/day of energy (12.7 kWh/day) and will generate daily about 2.36 kg CO_2-eq emissions[8].

[8]Using emissions factors of 51.53 kg CO_2-eq/GJ for pipeline natural gas and of 302 kg CO_2-eq/GJ for electricity, from the Australian National Greenhouse Accounts, October 2020. https://www.industry.gov.au/data-and-publications/national-greenhouse-accounts-factors-2020

A heat pump water heater under the same circumstances, providing the same load, with an average COP of 3, will require about 11.3 MJ/day of energy (3.14 kWh/day) and will generate daily about 3.41 kg CO_2-eq emissions[8].

In this example, the heat pump emissions are higher by about 45% compared to the gas unit, however the emissions factor for electricity in Victoria is 486% higher than for gas. If around 31% of the current electricity grid is offset or provided by renewable electricity, the emissions of both heat pump and gas water heaters in this example will be the same. Any additional increase in renewable energy component will mean the gas water heater will generate more emissions.
It is just a matter of time for the electricity network in Victoria, as well as for the rest of the country, to reach a scenario similar to this.

It would seem absurd and incredibly counterproductive to roll-out completely new gas networks to have them later converted to sustainable and low emissions solutions.
The planning of gas network extensions for new developments needs to stop now.

We would expect comprehensive modelling assessment of all relevant factors and parameters in hypothetical future scenarios to conclude that the optimal outcomes will be achieved with the combination of building energy efficiency and electrification with the use of solar water heating and heat pump solutions.

Therefore, the pathway we see for urban development and living from now to 2030 is for the gas industry to accept:

- the end of domestic gas networks expansion,
- the start, via government planning and programs, of the conversion of existing gas heating practices to electrification alternatives for the domestic/residential sector, as described; and
- the need to initiate an overall process of downsizing, phase-out and transformation of their operations into sustainable practices.

All this should be very clearly regulated by government to enable a reasonable transition away from traditional gas heater manufacturing, as the need may be, to minimise the impact on that sector of industry and provide the necessary assistance it may require, and to minimise the impact and incentivise the uptake of electrification alternatives for gas users.

An example of this, which is happening now, is the aforementioned solar hot water program incentive by Solar Victoria, for the replacement of gas water heaters by solar and heat pump water heaters. In line this with, it is expected that new VEU activities will be created for the same purpose; the substitution of gas water heaters with solar and heat pump alternatives. This will complement and complete the support already planned as part of the heating upgrades program to assist low-income households in the replacement of gas heating appliances.

This is of course a very significant transition, yet such large-scale changes sometimes affecting the entire population and economies of countries are expected in progressive societies and should be embraced as an improvement to living standards.
This does not mean the total elimination of gas heaters as freedom of choice for end-users wishing to use these should be allowed where practical and within reason.

Both these matters are further discussed in our answer to the question on consumer preferences.

- **What is the scale of the opportunities and potential to accelerate uptake?**

Electrification with ongoing decentralised penetration of renewable energy using solar photovoltaic systems in homes is a reality that continues to grow. Added to this is the increase of renewable electricity in the grid as more sustainable and renewable energy generation is created for that purpose. For Victoria it appears that 10%-20% of homes already have PV systems. This figure is naturally growing due to incentives and end-user motivation to move to more sustainable and cost-effective options at the same time.
In our view, this is a demonstration of the large opportunities for electrification and acceleration of uptake.

- **What are the key technical, regulatory and economic barriers?**

The simultaneous management of:

- Reduction of gas demand/infrastructure and curtailment of new domestic gas networks asap
- Industry adjustment to:
  - a mandatory decline of new gas developments in the domestic sector.
  - the phase-down and eventual phase-out of gas usage in existing infrastructures.
- The need for a reasonable transitional arrangement to be crafted by consultation between government and all parties impacted by these actions.
- Increase and tightening of efficiency requirements in the construction industry to make existing and new buildings and homes thermally efficient.
- Increase of electrical supply requirements as gas heating products are phased out in favour of low-energy consumption electrical products.

- **What are the roles to be played by government, industry and how will consumers preferences be accounted for in the transition?**

Consumer preferences should be honoured where practical and within the 'greater good' approach for the best possible transition away from gas use in the domestic/residential sector. The use of less than ideal solutions for heating should still be allowed without this impacting the ongoing reduction of the gas network, or allowing further roll-out of gas infrastructure in new developments.
It will be necessary to eventually phase out gas heating products as we move to a totally renewable energy economy and consumers must be cognizant of this fact. The Victorian government must put into place appropriate and clear timelines supported by adequate incentives and phase-out programs for this to happen.

This is just a natural occurrence of industrialised progress where the *status quo* slowly changes to a better one and people's preferences are bumped in line with progress and an overall better standard of living. Examples of this are seen with consumers goods, such as with mobile phones and computers. An example that forced a change in preferences in a relatively short period, was the huge reduction of wasteful and polluting plastic bags in commerce. A more impacting example of a forced

change, spanning several years, was the elimination of leaded petrol, which had clear health risks justification for it.

An example of an ongoing, large-scale change happening at this moment is the phase-out plan for expanded polystyrene (EPS) in loose fill and moulded consumer packaging, and food and beverage containers, as part of the National Plastics Plan 2021 by the Department of Agriculture, Water and the Environment[9].

The phase-out has already started, with recommendations provided to the Industry Development and Policy Advisory arm of the Australian Industry Group for its member companies and businesses to eliminate straight away as much EPS as is possible, especially in new product lines, and to devise a credible plan for total phase-out that will formally commence in July 2022 and conclude by 2025.

Much work and detail is still to happen, yet this is another example of a significant change to many companies, businesses, organisations and consumers with nationwide impact.

Regardless of the reasons for moving away from business as usual practices, whether it implies a relatively small and uneventful change, or a massive one, change *is* inevitable and must be accepted for the betterment of society over individual and one-sided interests.

The time has already come for gas heating in domestic settings to be replaced by the all-round better electric alternatives, as mentioned multiple times in this document.

- **What are the likely timings of technical maturity and economic viability?**

From the proposed decarbonisation pathways, improving energy efficiency of housing and electrification are already at technical maturity given they are currently being deployed all over the country in various forms and to varying degrees of penetration and success. They are able to supply both the energy requirements for a growing population and the reduction of GGE, via the uptake of energy-efficient, low-energy consumption heaters, in conjunction with an expanding renewable electricity grid. This level of technical maturity is clearly not the case for any of the other pathways.

- **What are the best ways to maintain social acceptability and consumer confidence?**

There is already social understanding and acknowledgment of the utility and efficacy of those technically mature pathways mentioned before.
For domestic use, insulation, general building improvement practices and replacement of consumer goods for more efficient ones, are a simple and quick way to improve the overall thermal efficiency of the dwelling at relatively low costs and reduce energy consumption costs.
Renewable electricity from centralised and decentralised sources is easily and routinely used for all electrical requirements, such as cooking, space conditioning and heating and hot water production.

[9] https://www.environment.gov.au/system/files/resources/a327406c-79f5-47f1-b71b-7388407c35a0/files/national-plastics-plan-2021.pdf

As mentioned before, there have been and continue to be multiple programs and incentive schemes in support of this.

Therefore, social "acceptability" would mainly apply to the financial impact these changes may have. This is why said programs, schemes and incentives are necessary, must continue and must be expanded, all of which is also well understood, and is fully embraced when clear benefits are seen.

- **What are the inter-dependencies and trade-offs with other pathways (are pathways complementary or alternatives)?**

As already mentioned, in the domestic sector and urban living, heating applications are better served by solar water heaters and heat pumps, which are many times more efficient than gas heaters and when coupled with renewable electricity also generate lower emissions and the potential for zero emissions (as is the case for the ACT).
Therefore, there are no inter-dependencies or complementarity between gas usage and other pathways in the domestic sector, in the same way as they do not exist either for other states and territories.

Electrification is a necessary alternative in the short, medium and long term if the objectives of the program are to be truly realised: emissions reductions aiming for net zero emissions, higher efficiencies for buildings, for appliances, maximum sustainability in our day-to-day living practices.

- **What are the key uncertainties and potential for unintended consequences?**

Energy-efficient building practices and renewable energy electrification are pathways already implemented in various ways in other states and territories and in Victoria as well (VEU activities, Solar Victoria *Solar Homes* program, ACT *actsmart* programs & schemes, to name some).
From the experience already obtained in Victoria and elsewhere it is possible to extrapolate what is likely to be needed in the state by continuing and expanding such practices.

Because of this, improving energy efficiency and electrification would appear to have no major associated uncertainties, as the challenges and difficulties, as well as unintended consequences in their implementation, appear to be reasonably well known.

For a broader look at the expectations, consequences and challenges of implementing the pathways under consideration, one may look at the changes occurring in Europe and how these have been managed and planned for the future.

For example, regarding the transition to sustainable practices, there is the ongoing closure of coal-fired power stations in the UK and Germany, set for 2025 and 2038, respectively, and the increase of renewable energy in their grids. In the UK, coal-fired power reduced dramatically after 2015, now making up less than 1.5% of the total energy mix, with the increase of wind and solar energy contribution, now making 25% of total electricity generation[10].

[10] https://www.ofgem.gov.uk/energy-data-and-research/data-portal/wholesale-market-indicators

The UK also has several ongoing and planned projects for hydrogen production and distribution, which despite being contentious in some cases and met with rightful criticism[7,11] may provide useful answers and lessons[12,13].

Key issue 1
Maintaining electricity reliability with new sources of demand

- **What policies are needed to ensure that the electricity network can reliably serve new sources of demand from electrification of gas demand, hydrogen production and electric vehicles?**

Refer to the previous answer, for the leveraging of resources with what is currently known locally and elsewhere from overseas experiences.

- **What is the role for gas-fired power generation and hydrogen in maintaining electricity reliability?**

This seems unanswerable until more detailed investigation is done into electricity reliability and how to best manage it. The question presumes the need for gas-fired power generation and hydrogen to achieve this, yet this is precisely part of what this consultation work "deep dive" seeks to determine.

Also, whilst gas-fired power generation is meant for electricity production, hydrogen production would actually require power and electrical power if it is obtained using electrolysis, therefore, from that point of view it would seem initially contradictory to suggest that hydrogen could somehow assist in maintaining electricity reliability.

In any case, more work needs to be done to establish the most appropriate pathways to maintain grid reliability.

Key issue 2
Transitioning to more sustainable gaseous fuels with minimal disruption to end-users

- **What are the key technical challenges in converting existing gas networks to accommodate more sustainable gaseous fuels?**

Refer to page 3 of this document, to the referenced articles and to the list of disadvantages and difficulties for the use of hydrogen and biomethane as natural gas replacements.

[11] https://theconversation.com/hydrogen-isnt-the-key-to-britains-green-recovery-heres-why-143059
[12] https://www.wfw.com/articles/hydrogen-in-the-uk/
[13] https://www.edie.net/library/Hydrogen--Is-UK-policy-and-industry-at-a-tipping-point-/7037

- **What are the potential costs and opportunities in switching to more sustainable gaseous fuels for consumers?**

This is similar to a previous question where the actual modelling work should show the expected costs and if there even are opportunities for doing this switching. As mentioned earlier, it does not appear this is a practical pathway for domestic/residential activities, however for industrial activities it seems very different, which this work should clarify.

In any case, as stated earlier, simply not having town/piped gas as another fuel source in the home immediately removes the costly supply charge of the order of 200-$300 per year and another good reason for consumers to switch from gas heating to low-energy consumption electric heating, more so if there is on-site PV energy generation to take advantage of.

Key issue 3
Maintaining the reliability, affordability and safety of gas supply

- **What are the affordability, reliability and safety considerations related to gas supply and gas infrastructure, both in the short term and during a long-term transition to a decarbonised gas sector?**

Besides looking at other sources of reference and experience, as mentioned in previous answers, this should be well handled and elucidated by the gas industry, being able to evaluate potential transitional measures of their own assets and forecasts on what the impacts may be (and of course, any claims should be properly substantiated with facts and figures).

Key issue 4
Supporting Victoria's workforce, industry and the institutions that support them

- **What workforce skills and industry capabilities are required to transition to new and emerging energy sources?**

Undoubtedly, a change and transition away from gas due to electrification will require a change in the expectations and capabilities of the workforce currently trained in gasworks, as they gain expertise and experience with what is new electrical technologies and appliances for them.

This will be indispensable, particularly as the growing demand for hydronic heat pumps as an alternative to gas boilers increases further.
Hydronic heat pump solutions lie at the core of our business and is a very active and growing sector of this industry. This includes air-source heat pumps and also ground-source heat pumps for which typically ground collector loops or wells circulating a water-glycol solution in a closed loop, are used as the heat source.

We confidently anticipate there will be much labour force required to properly service the need for these products.

In addition to plumbing and general electrical and mechanical work associated with this technology, the demand for smart control systems to automate and optimise load-usage will also increase.

Nowadays, companies engaged in hydronic heat pump work are requested to provide optimisation solutions of this nature, so besides understanding the working aspects of the technology and installation requirements, they must also familiarise themselves with product functionality that enables them to be part of the monitoring and control of distributed energy resources (DER) and how to set this up for maximum benefit to the customer.

- **How can government, industry and unions best work together, including through the Victorian TAFE and Training system, to help to build these skills and capabilities, and support existing workers through the transition?**

- **How do we maximise local job opportunities, including for industry training centres such as that operated by the Plumbing Industry Climate Action Centre, to prepare workers for the future?**

Once again, we can look at what is happening overseas with the UK being a good example where educational programs for training/upskilling for these purposes have been implemented[14, 15].

There are companies and NGOs, such as manufacturers and university groups, that can contribute and currently conduct training of this type to better equip the plumbing & installation workforce, as well as consultants, engineers and architects via CPD and in-house programs, to cope with this growing need of business.

Key issue 6
Transitioning the Victorian economy efficiently and equitably

- **How can we help low-income and vulnerable households manage any upfront costs in changing energy sources?**

Typically, by assisting with one-off financial incentives that simultaneously offset costs and motivates the changes to occur.

This can be done by offering low cost electricity tariffs for heat pump systems that encourage the use of load-shaping and other smart load control measures (eg. demand response) at the most convenient times of the day.

Specific programs have already been mentioned in this document as well as in the issues paper, such as VEU activities, Solar Victoria's *Solar Homes* program, Clean Energy Regulator SRES STCs eligibility for solar and heat pump water heaters and others.
It is a matter of extending these programs and/or creating similar ones.

[14] https://esp-scotland.ac.uk/energy-efficiency-transition-training/
[15] https://www.renewableenergyinstaller.co.uk/2021/05/free-hybrid-heat-pump-training/

- **What are the barriers for households in improving the efficiency of their use of gas for heating, cooking and hot water and/or switching to solar/pump hot water in existing homes?**

As mentioned previously, electrification technologies are well-matured and mainstream, with consumer acceptance and confidence of their effectiveness.
The barriers are essentially of financial nature, which can be overcome as mentioned before via the many ways in which supporting/incentivising programs and schemes can be implemented.

- **What are the opportunities for the Victorian Energy upgrades program to incentivise efficient gas use, thermal upgrades of buildings (e.g. insulation) and electrification?**

As per previous answer.

- **What issues and elements do you see as most important to improve the energy and emissions performance of new homes?**

First and foremost, improving the building fabric of the home (and buildings) to increase thermal efficiency and so reduce the thermal load. This could be considered the "low hanging fruit" of all options. This pathway would ideally be supported with programs that encourage and reward, for example, high energy ratings for homes. There is good experience around the country of incentive programs to this end.

The lower the thermal need for comfort, the lower the energy consumption and the emissions of the heating and cooling products will be. This will mean a reduction in size for space conditioning equipment, so a reduction in cost as well for the purchase of those products.

More incentives will drive demand up, which in turn will assist with economies of scale by bringing equipment costs down and will foster also healthy competition and increase demand for qualified labour force.

In Europe this is currently the case, where demand for hydronic heat pumps is unprecedentedly high and with it the need for more installers and better, more targeted, solutions. The replacement market is huge in Europe.

Kind regards,

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