



## **RP 2.2-04 Policy options to support future fuels deployment: Investigation of the use and design of a Renewable Gas Target**

The adoption of renewable gases into the energy mix is at an early stage – it is much less advanced than the adoption of renewable electricity. Renewable gases are at present too costly to compete with natural gas or electricity but there is potential for substantial reductions in their costs if they are brought into the Australian energy mix at scale.

This raises the question of how Australian State, Territory and Federal Governments could actively support the increased use of renewable gases in Australia's gas supply. One approach is to introduce a mandatory renewable gas target (RGT).

This project investigated the potential for an RGT mechanism to boost the use of renewable gas in Australia's gas consumption. The project was designed to allow stakeholders to better assess the implications of policy options for an RGT and the implications for the broader adoption of future fuels. To this end it presents and analyses alternative approaches to the design and implementation of an RGT. It has produced three reports, these being:

- *Understanding the implications of a Renewable Gas Target for Australia's gas networks: Deep Dive Report* (March 2023)
- *Learning and cost curves: historical experiences* (July 2023)
- *Design options for a Renewable Gas Target* (July 2023)

### **Research findings**

The project and the reports issued under it draw together a wide knowledge set and offer thoughtful consideration of its implications for the design of an RGT. They should be of interest to any policymaker concerned with how renewable gas could play a part in decarbonising the Australian economy.

#### *The international and domestic policy context for a Renewable Gas Target:*

The Australian Government and most State Governments are developing initiatives to support and promote renewable gas, with an overview included in the *Deep Dive* report. There is also considerable effort under way to remove barriers to the adoption of renewable gas — regulatory barriers, skill requirements, etc. — and to pilot test their use. But notwithstanding these efforts, there is as yet no coordinated national effort with a clear target for the uptake of renewable gases in the domestic energy mix. This is in stark contrast to the electricity sector, where growth of renewable electricity generation has been fostered for more than two decades by Australia's Renewable Energy Target (RET).

A review of overseas energy policies in advanced economies shows there are numerous initiatives in place to promote the uptake of renewable gases. They vary widely in terms of the renewable gases supported, the ways that they fit into energy supply chains, the incentive structures used, the breadth of their scope and their ambition. Most of the broadly targeted renewable gas schemes are in their early stages, having been in operation for no more than a year or two. Therefore it is too soon to tell whether they have delivered the long run benefits that they are aimed at.

Australia has its own experience with the use of target schemes to change its energy mix. Most significant among these is the RET. Since 2001, the RET has steered the Australian electricity sector to the point where around 20 per cent of Australia's electricity comes from additional renewable generation. Incentives in the RET have been an important source of encouragement for renewable generation. The *Deep Dive* report discusses the RET and potential lessons for an RGT.

The project team also interviewed a number of stakeholders to elicit their views and concerns regarding an RGT and these consultations are reported in the *Deep Dive* report. A wide range of issues were considered and these drew diverse responses from stakeholders. These issues included the potential for cost impacts on gas users, the limitations of electrification as a means to decarbonise gas, the role of an RGT in emissions reduction, development of the renewable gas sector and energy security, technical issues, and various aspects of efficiency and equity.

#### Potential benefits of a Renewable Gas Target:

One of the main potential benefits to come from an RGT would be reductions in unit costs as the scale and experience of the renewable gas sector grows. The *Learning and Cost Curves* report summarises cost trends in other energy sectors as they matured, particularly solar and wind generation. It finds that in most cases there is evidence of cost reductions from scale-economies and learning effects as industries mature. The reasons for these cost reductions include causes such as:

- the realisation of scale economies;
- learning-by-doing;
- learning-by-(re)search; and
- other forms of learning such as learning-by-interaction.

The extent of these cost reductions varies widely from one sector to another and it is not possible to confidently predict cost trends for green hydrogen and biomethane. But if middle-of-the-range gains were realised then the reduction in renewable gas costs could be substantial. However, these cost reductions require renewable gas to be scaled and broadly deployed, leading to the need for supportive policy options such as an RGT.

#### Key issues and options for the design of a Renewable Gas Target:

A discussion of key issues that arise in the design and implementation of a renewable gas target is outlined in the *Deep Dive* report and in the *Design Options* report. The design choices that need to be considered include:

- whether to use quantitative target or subsidies;
- whether to use a pooled purchases scheme or a bilateral transactions scheme;
- whether to have separate state schemes or a national scheme;

- whether to pursue neutrality over the geographic sourcing of renewable gas;
- which renewable gases should be eligible;
- whether the scheme should be segmented (distinct targets for specific gases and/or uses);
- who should meet the costs that might flow from an RGT;
- what the ambition of the scheme should be;
- how an RGT should interact with other schemes such as the Safeguard Mechanism; and
- at what level to set opt-out provisions that protect gas users from excessive cost impacts.

The *Design Options* report aims to assist policymakers who must work out how best to deliver net zero for Australia and design related policies. One interesting variant of an RGT is one that is similar in style to the Australian electricity sector's RET. In this option, eligible renewable gas producers generate renewable gas certificates which they sell to gas retailers and large users who are required to surrender them in line with the quantity of gas that they use and the size of the target.

One of the variants in the *Design Options* report involves the Australian Government funding an RGT from general revenue. The other eight options impose costs on, variously, all stationary domestic energy users, gas users and exporters. Some variants are segmented and address green hydrogen and renewable methane separately, while some variants are neutral across renewable gases.

The options covered in the *Design Options* report all involve a national scheme. But a national scheme can be implemented in a way that leaves flexibility to the States in pursuing their own economic development agendas. A national RGT can help with the heavy lifting on decarbonising the gas system but still leave room for the States to act in ways that reflect local needs and opportunities as they see them. (The RET in the electricity sector operates in this way – it takes a location neutral approach but States have intervened in the development of renewable electricity in their own jurisdictions.) Moreover, an RGT can leave room for voluntary use of renewable gas above targets.

## Acknowledgements

This work was produced by a research team at the University of Adelaide with support from industry advisors from Energy Networks Australia, Australian Pipelines and Gas Association, Australian Gas Infrastructure Group, ATCO, AusNet Services, Department of Planning and Environment - NSW and Department of Environment, Land, Water and Planning - Victoria. We also thank interview participants for sharing their experiences, insight and expertise.

Future Fuels CRC is supported through the Australian Government's Cooperative Research Centres Program. We gratefully acknowledge the cash and in-kind support from all our research, government and industry participants.



Australian Government  
 Department of Industry,  
 Science and Resources

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