

Development of a Biomethane- Based Fuel Market in Estonia

Final report

Tallinn
December 2nd , 2016

Estonia wants to use biomethane to meet its renewable fuel targets



Total transport energy use

EU Renewable Energy Directive: 10% of energy use in transport from renewable sources

Estonia: Flexible biomethane (CBM) target of 3%

The 3% biomethane target represents about the total energy use by busses

ENMAK Business as Usual scenario: 40.7 PJ in transport in 2020

ENMAK Knowledge economy scenario: 31.3 PJ in transport in 2020

CBM target: 0.9-1.2 PJ (27.5-35.9 million Nm³) ~ energy use by busses

This work will support the efforts of Estonia's government to support CBM

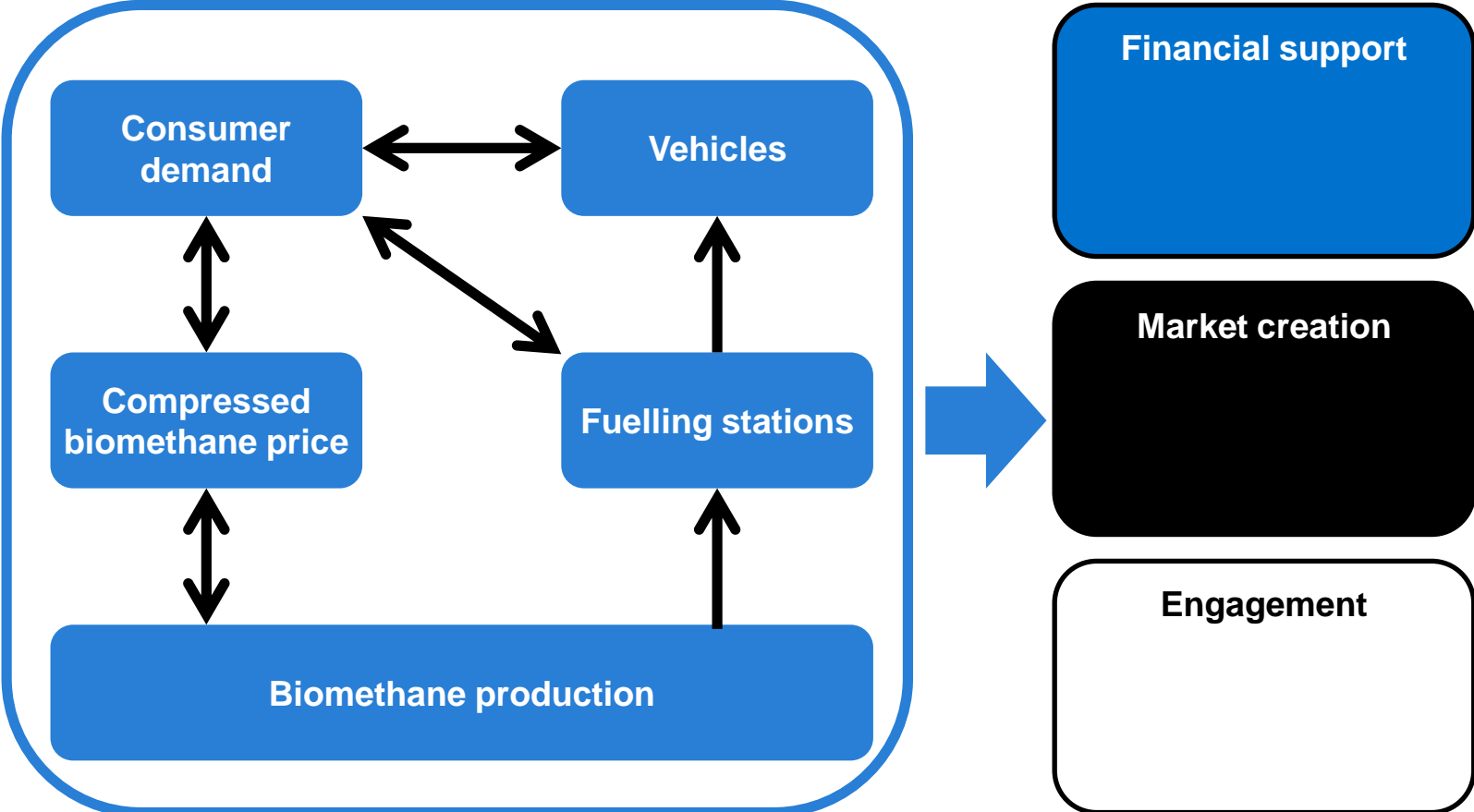


- Interviews
- Research
- Experiences in NL, SE, DE
- Modelling to quantify

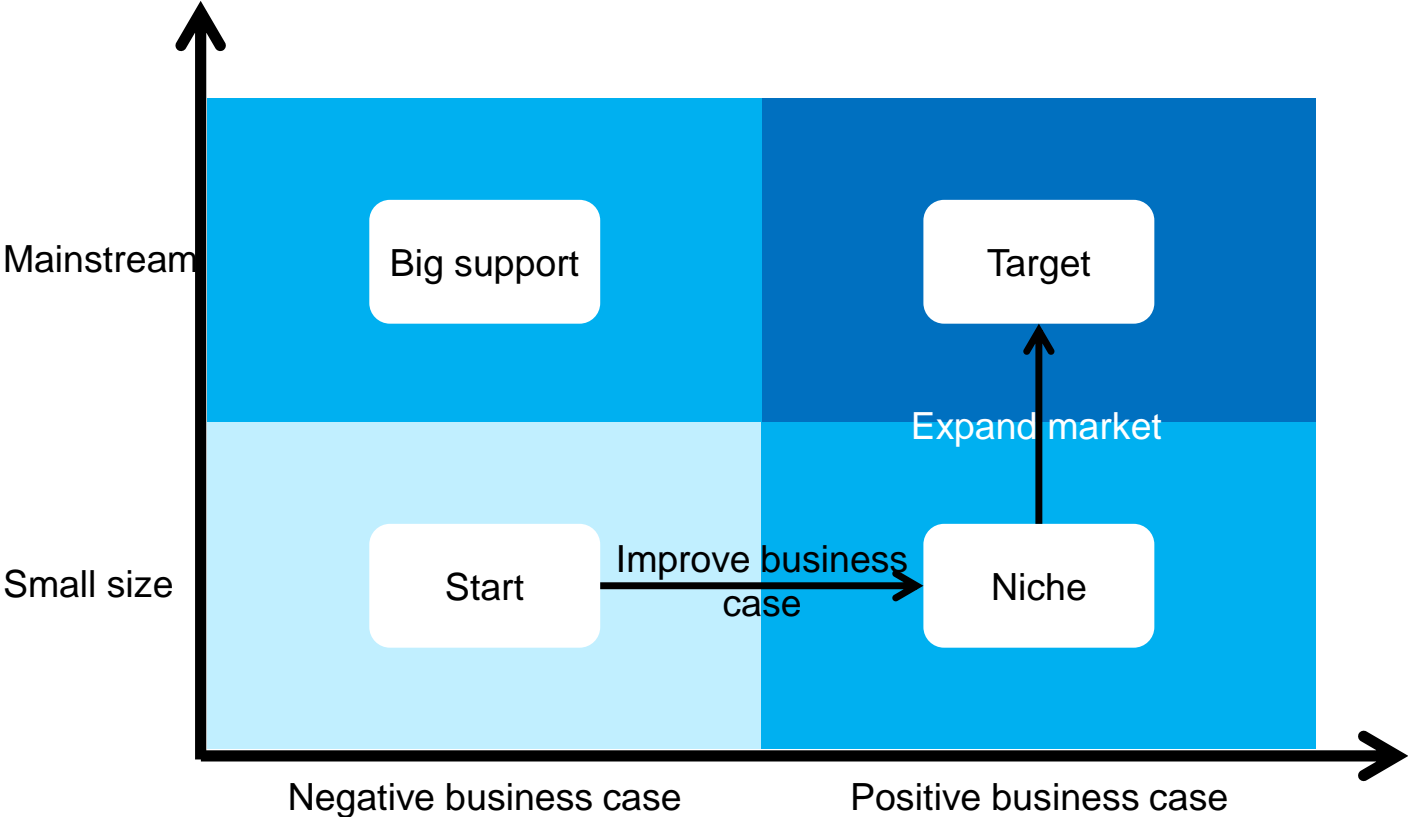
- 12 key solutions
- Chosen for large impact
- Financial support
- Engagement
- Based on general principles
- Act as guidelines to pick-and-choose from

- Established by Ministry of Economic Affairs and Communication
- Takes guidelines from toolkit and adapts them to the current situation
- Will be presented after this presentation

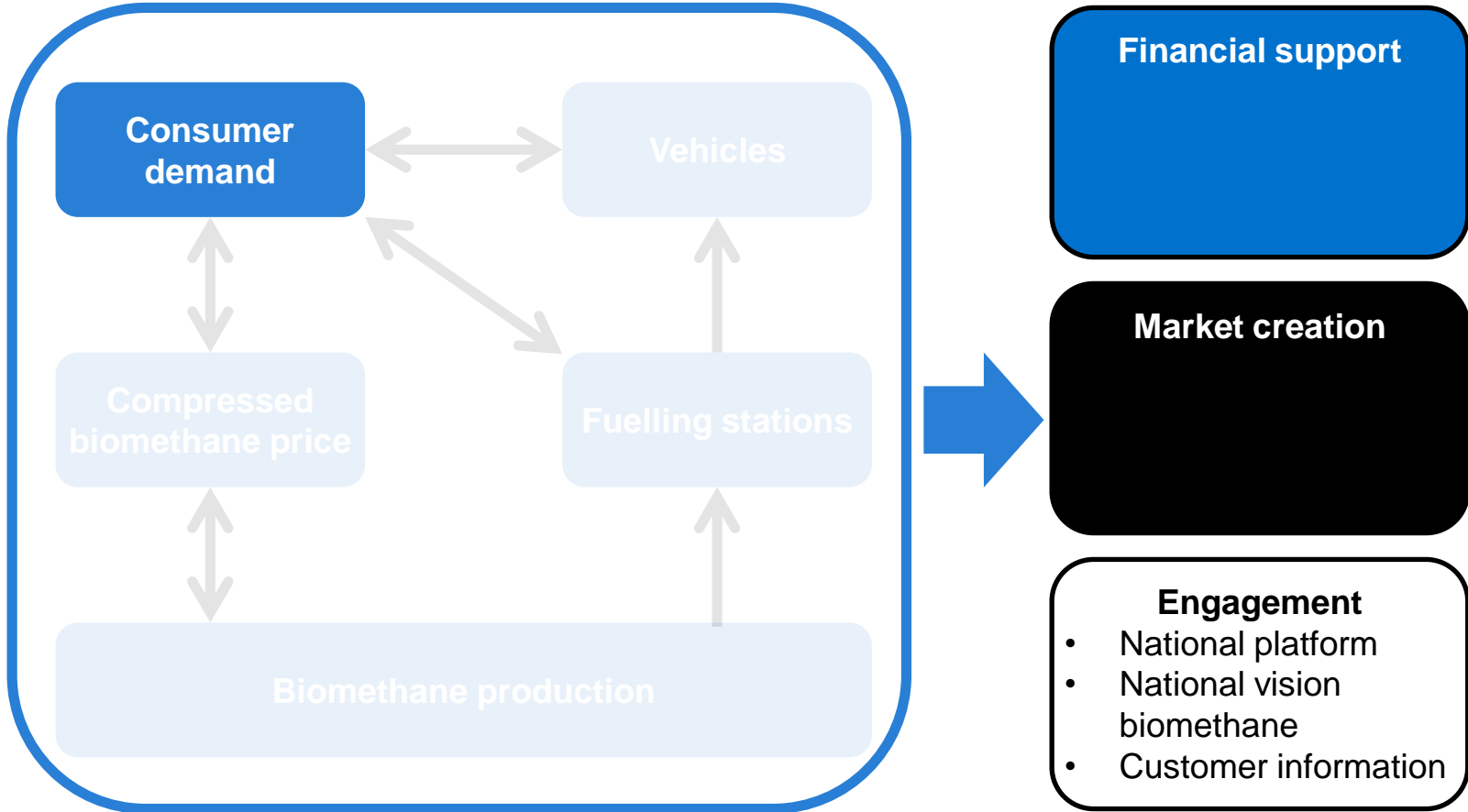
The elements of the biomethane value chain interact and create solutions



Improve the business case first, then expand the market



For consumers, the focus is on engagement and information



Bring the right information with effective ECN methods to promising user groups

Information:

- Business cases
- User needs satisfaction
- Local economy
- Impact on local air quality
- Sustainability

Methods:

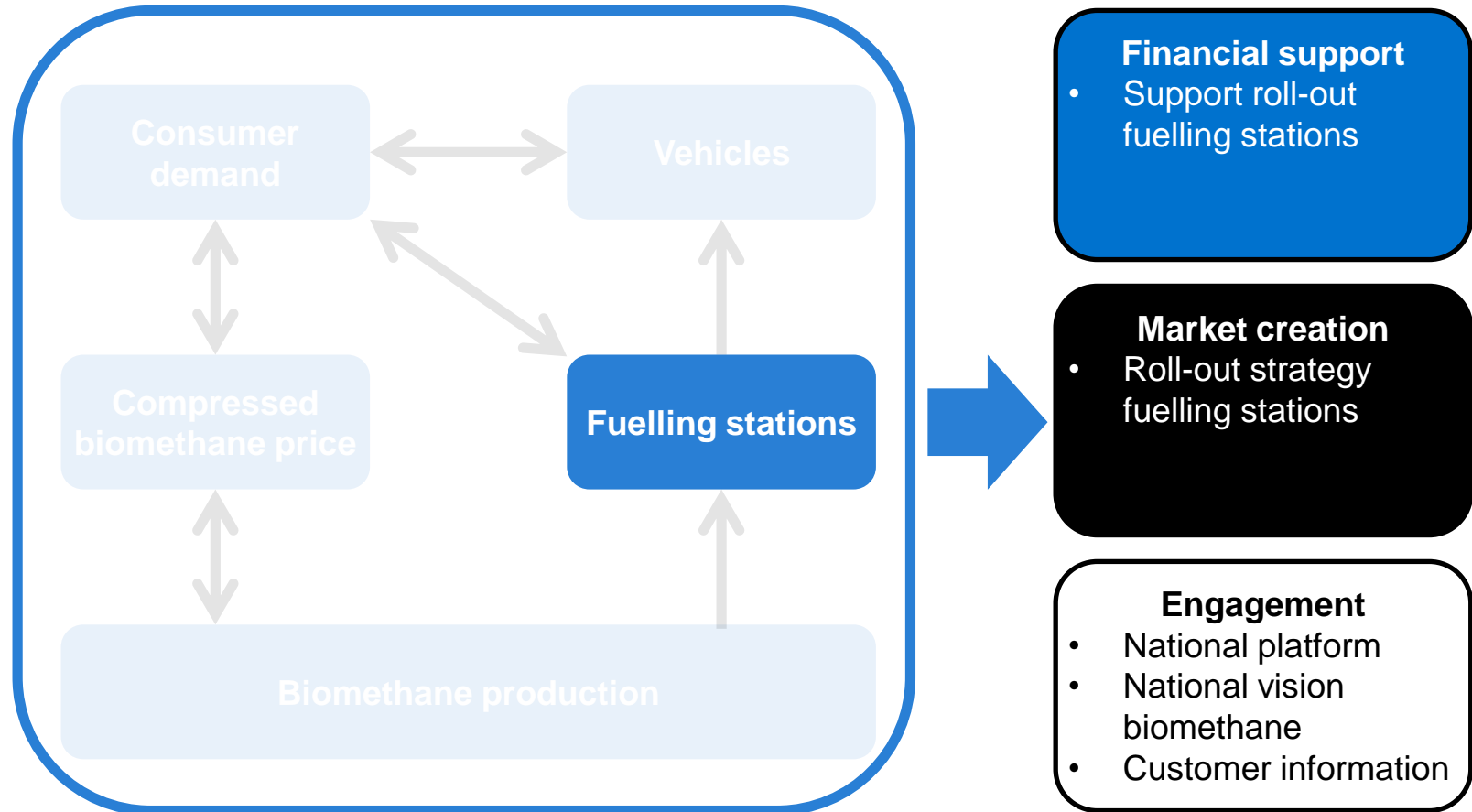
- Common base
- Attractive signage
- Ongoing dialogue
- Use champions
- Signal commitment
- Accessible and simple

Promising users groups:

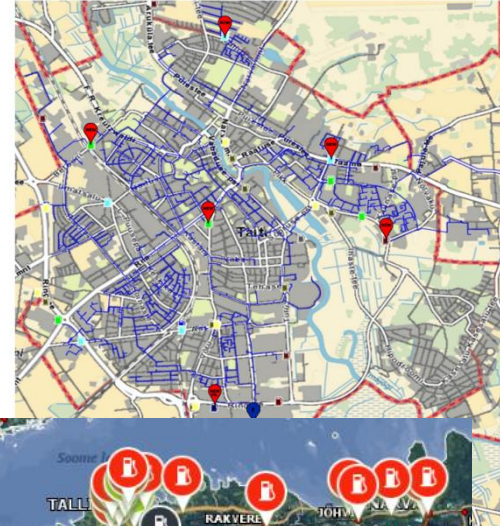
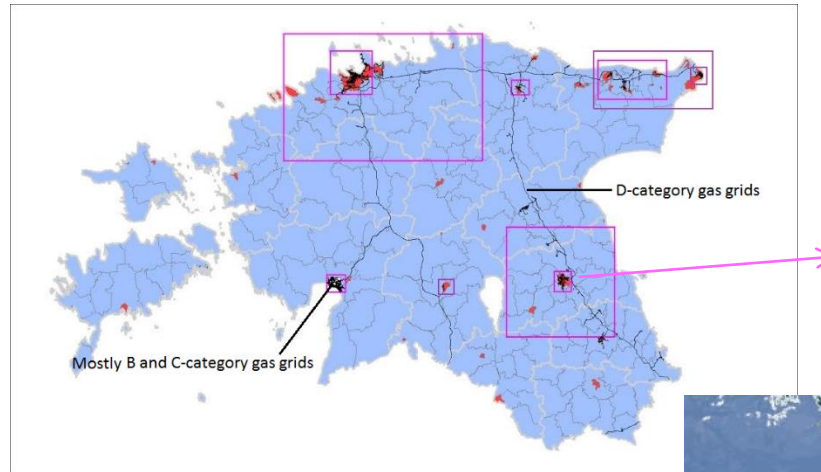
Get a 1-5 score on

- Potential (weight=5)
- Influencability (weight=4)
- Suitability (weight=3)
- Timing (weight=2)

Fuelling stations require a strategy and support for their roll-out



Developed detailed maps on proper places to place fuelling stations

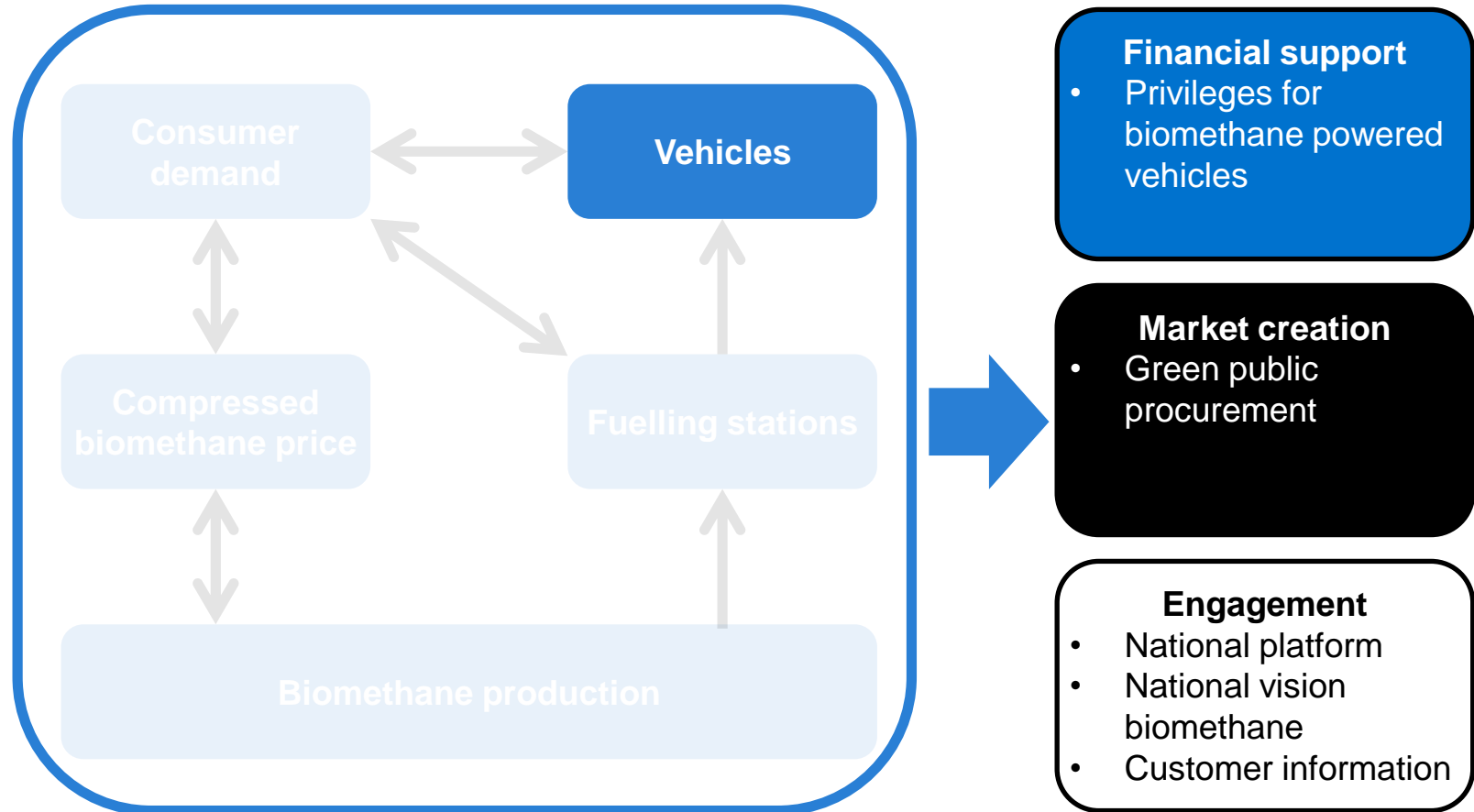


11 detailed zoomed regions
– 3 counties, 20 cities and
other important regions

In total 50 possible
locations for new fuelling
stations



Vehicles would benefit from privileges and green procurement policies



Privileges for CNG vehicles

Restricted access

- Standards for loading and unloading noise emission during early hours.
- Result: 300 LNG trucks for city distribution trucks in the Netherlands



Free parking

- Reduced parking fees for CNG vehicles.
- Result: 400 CNG vehicles in Graz

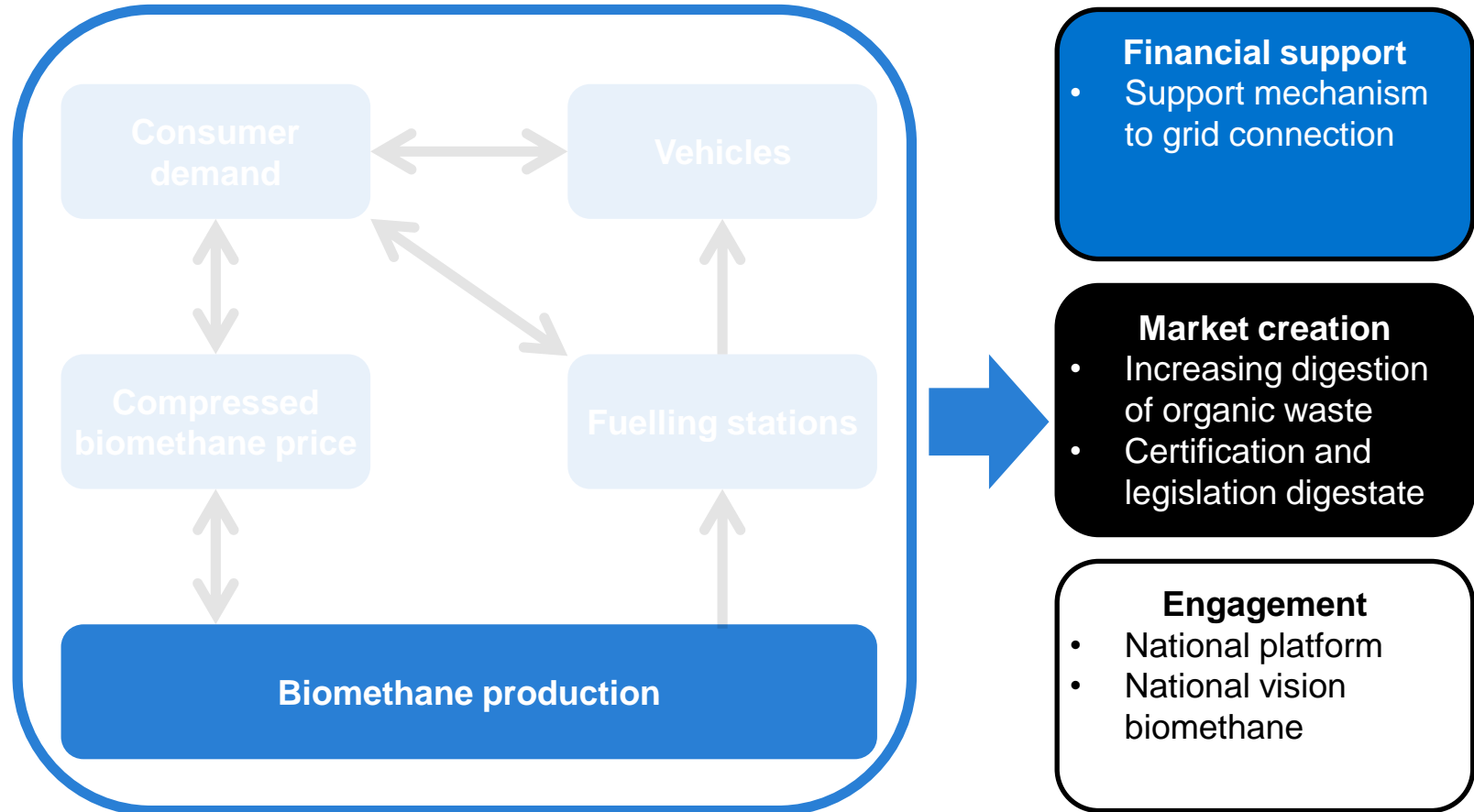


Priority lanes

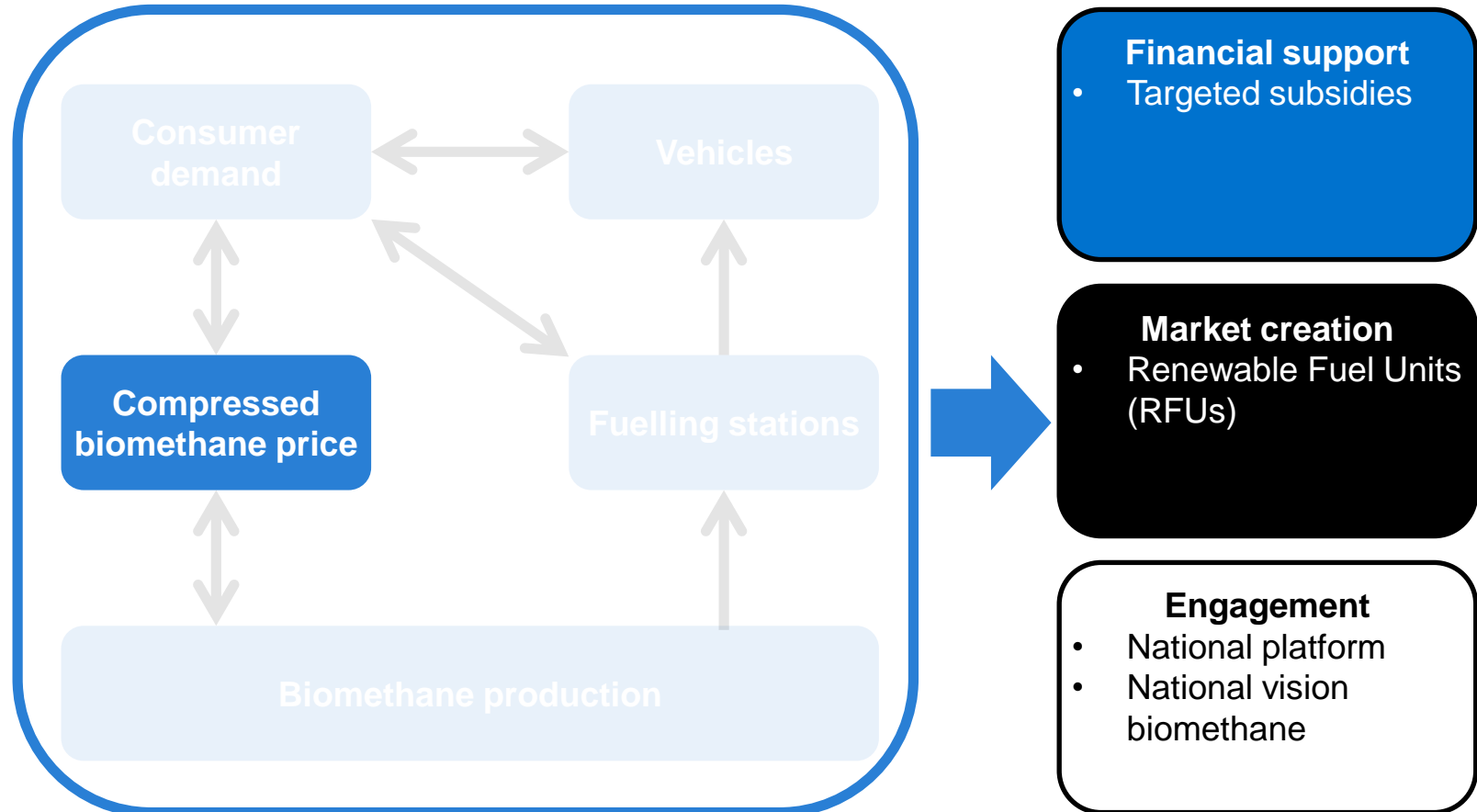
- Allow clean freight distributors to share priority transport lanes.
- Result: a maximum 16% time saving during peak hours in Norwich.



Financial support and opening new markets can help biomethane production



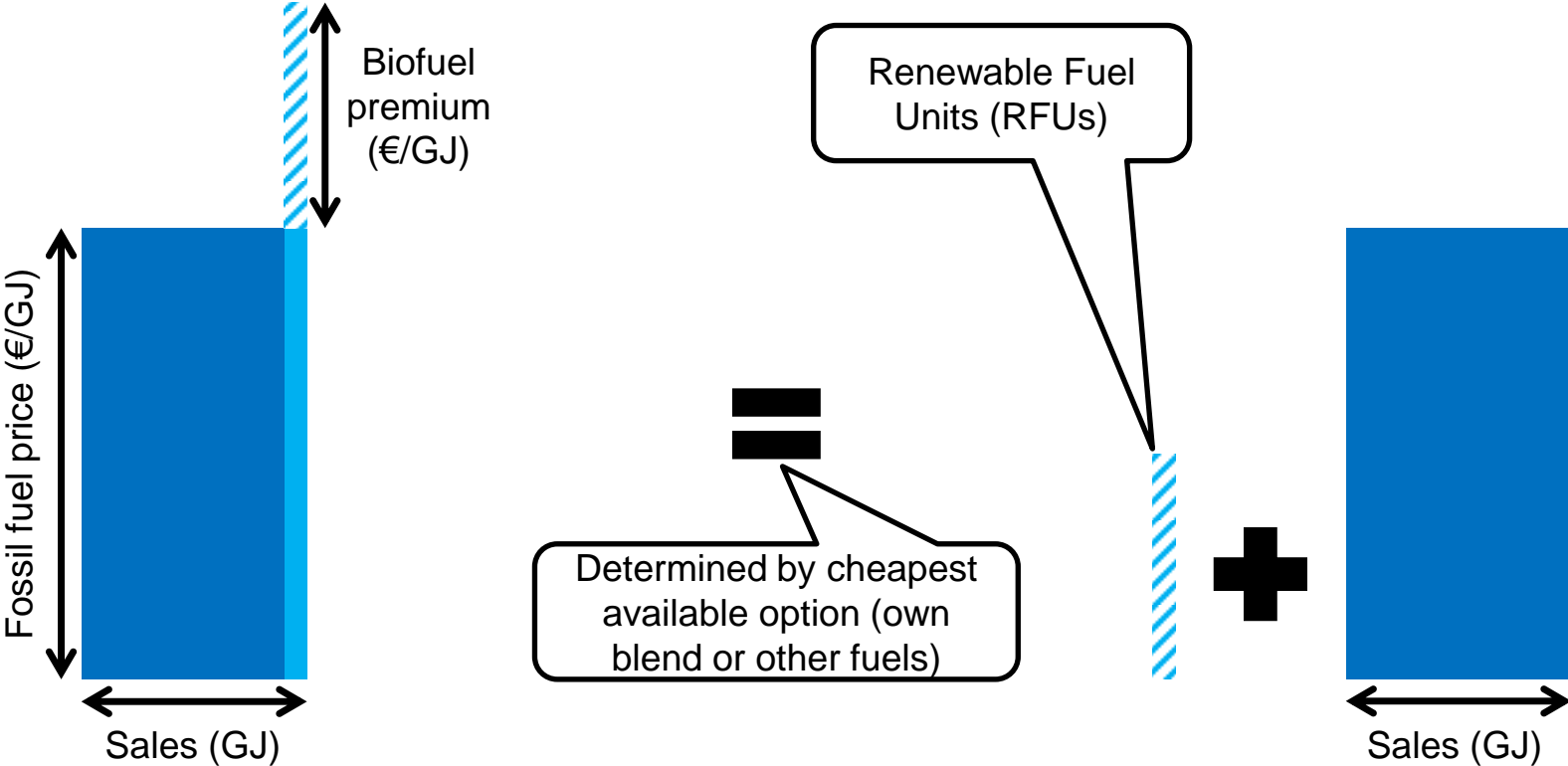
Subsidies and/or market tools can help fuel pricing issues



Renewable Fuel Units give liquid fuels ECN suppliers more flexibility, at a lower cost

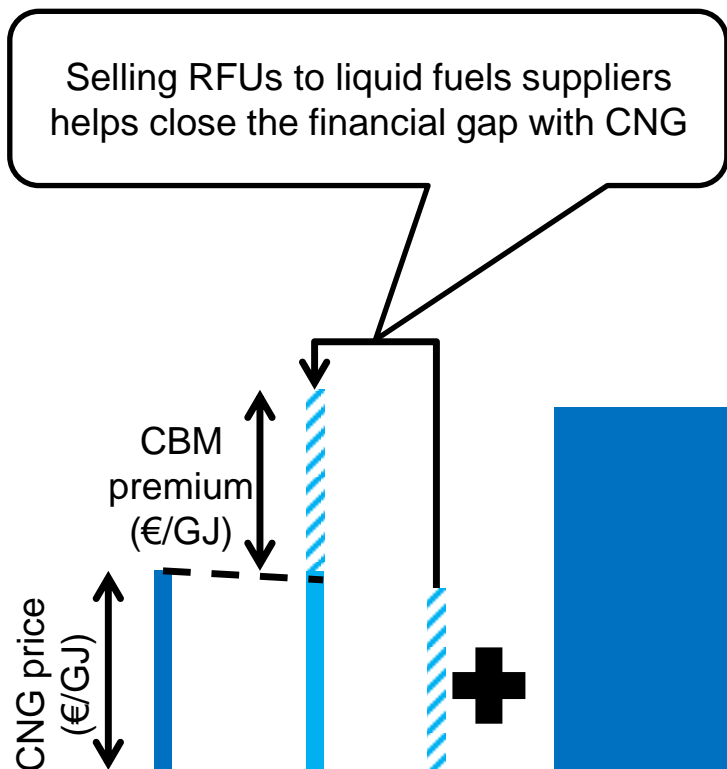
Liquid fuels suppliers can blend biofuels

Or they can buy RFUs

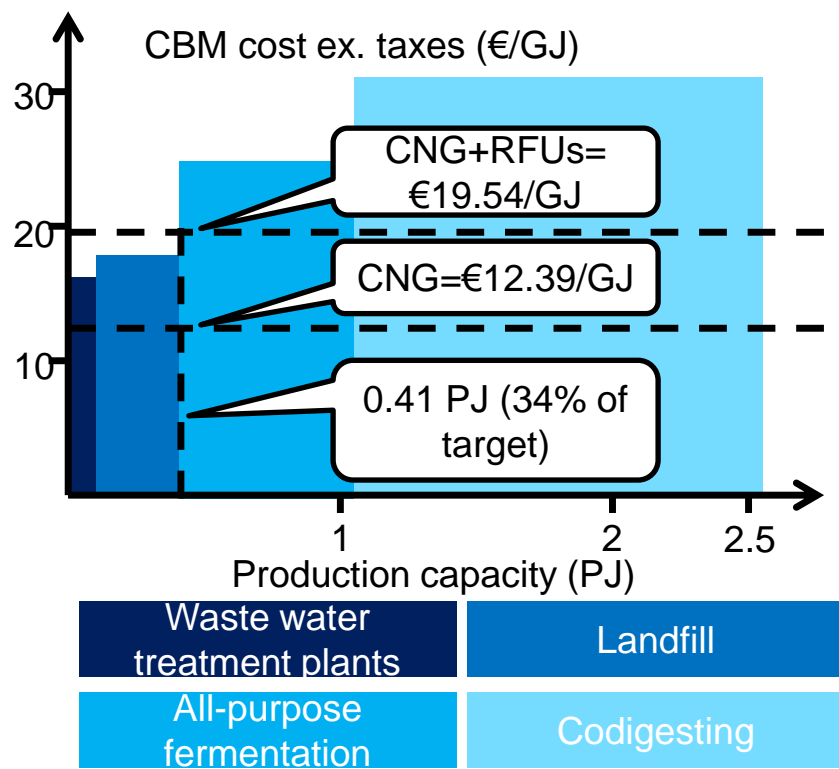


These RFUs can help close the financial gap between CNG and CBM

CBM producers can sell RFUs



Closing the financial gap for 34% of the target



The key design principles are based on the Dutch system



Stable

- Price floor
- Link to subsidy

Reliable

- Controls and verification
- Clear, simple rules for accountability

User-friendly

- Easy-to-use website
- Helpdesk

Known

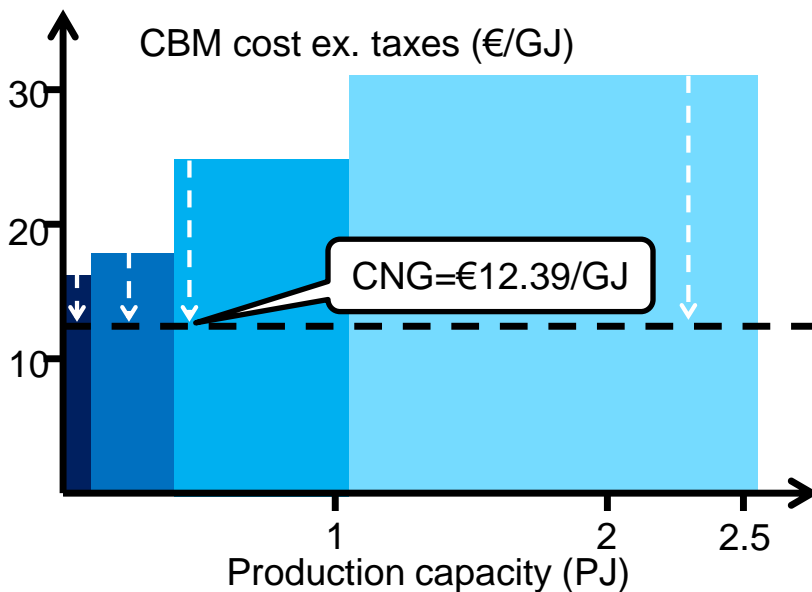
- Workshops
- Information campaigns

Market-friendly

- Separation between registration and trading
- Stakeholder information
- Protections against abuse

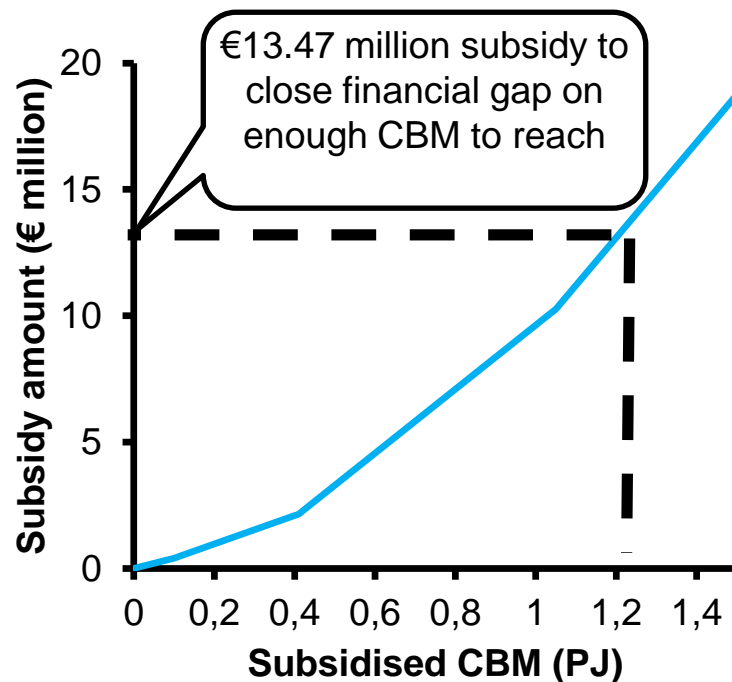
Targeted subsidies are an alternative to ECN RFUs

A targeted subsidy only covers extra costs

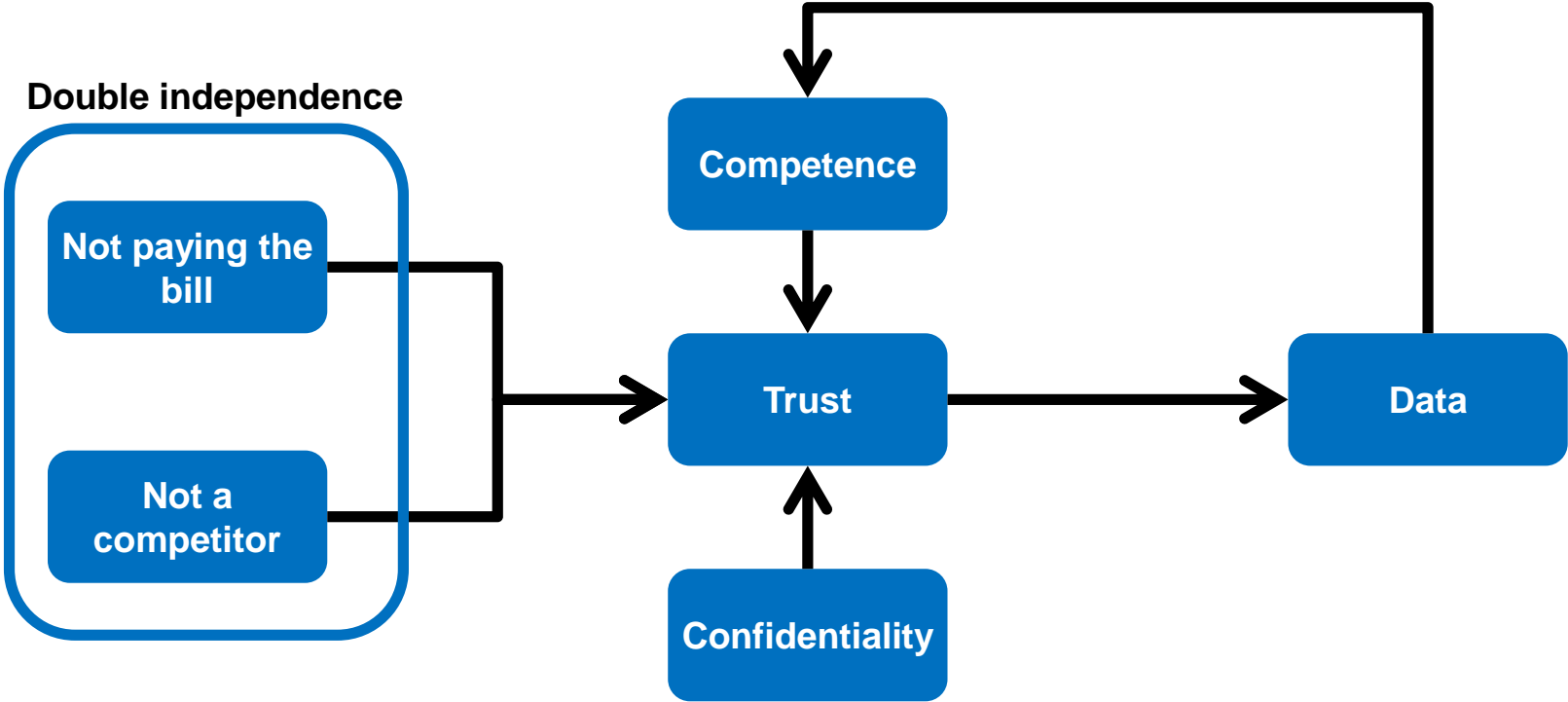


Waste water treatment plants	Landfill
All-purpose fermentation	Codigesting

This would require a large subsidy



The key is a trusted and competent production costs evaluation system



Thank you for your attention!

Key solutions are ranked according to ECN five criteria, with five stars each

Criteria	★★★★★	★★★★☆	★★★☆☆	★★☆☆☆	★☆☆☆☆
Affordability	>€10 million	€1 million →€10 million	€100'000→ €1 million	€10'000→ €100'000	<€10'000
Feasibility	Impossible in the given timeframe/Estonian context	Large amount of challenges that would need a major effort/focus	Moderate amount of challenges; some special attention	Few small challenges; no need for special attention	No obstacles
Impact (%target)	<0.1%	0.1%→1%	1%→10%	10%→100%	>100%
Speed	Beyond 2020	Years	Months	Weeks	Immediate
Readiness	No elements in place	Some elements in place	Most elements in place	All elements in place	In place