Biogas solutions in Sweden – framing, status and policy

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Biogas Research Center
- developing resource efficient biogas solutions in a transdisciplinary competence center through collaboration between 21 biogas actors and 10 research groups at Linköping University and Swedish University of Agricultural Sciences

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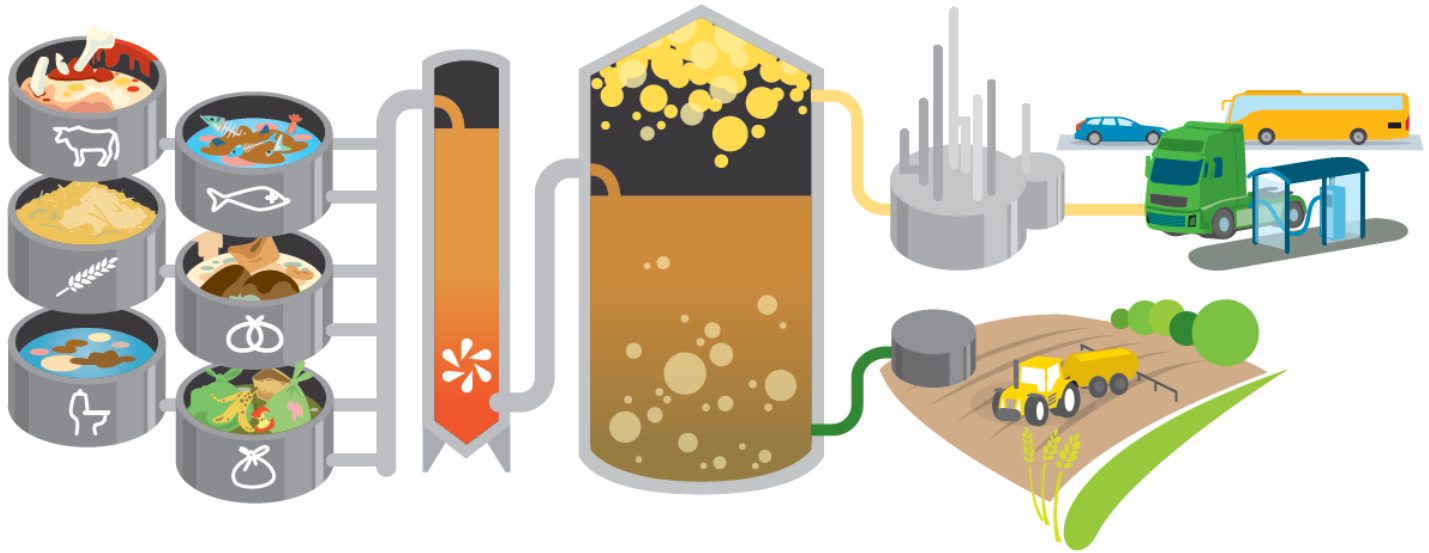

Nordic model for biogas

- Waste codigestion and sludge digestion
- Upgrading to biomethane for transport
- Digestate used as biofertilizer

Sustainable cities and regions
Integrated solution for wastewater treatment, waste management, transport and nutrient recycling with global relevance.

Sustainable bioeconomy
Biomass must be used efficiently and cascaded from high to lower value applications. Biogas solutions improve resource efficiency in the entire bioeconomy – agriculture, forestry and aquaculture.

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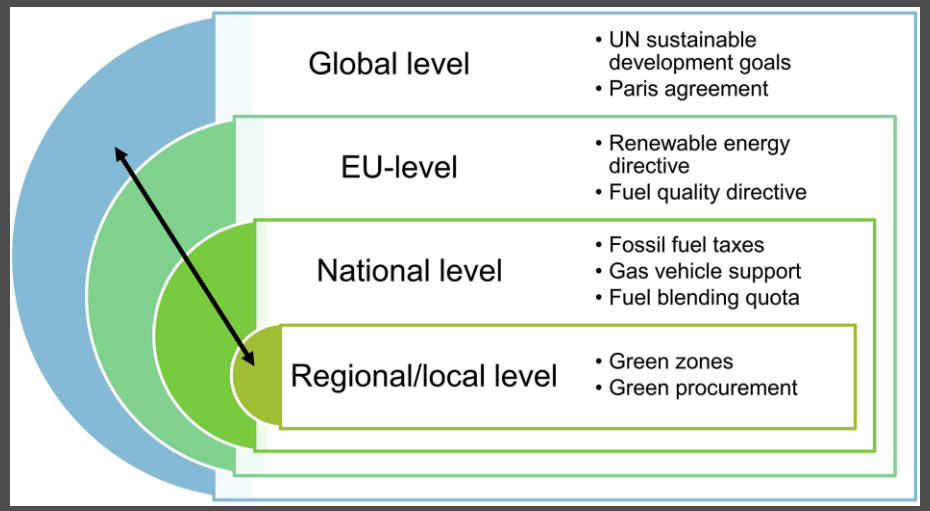
Resource and pollution problems grow because sectors and supply chains are separated from each other and primary inputs still dominate

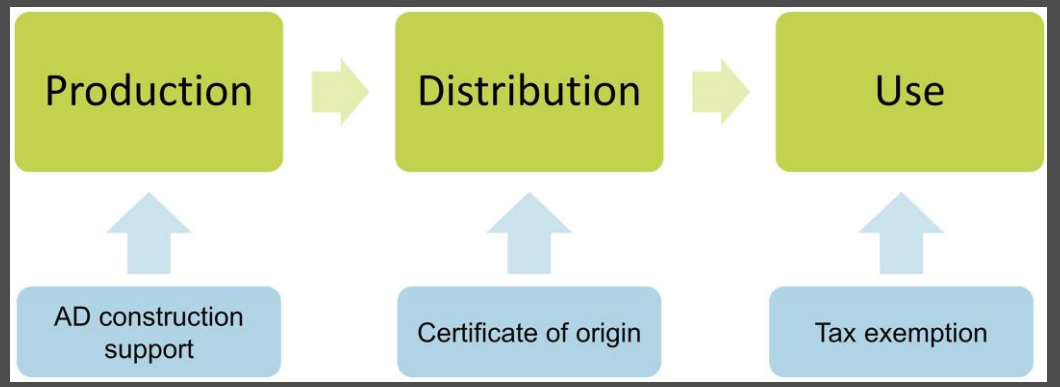
Biogas solutions reconnect parts of systems

Fragmented and sensitive policy area

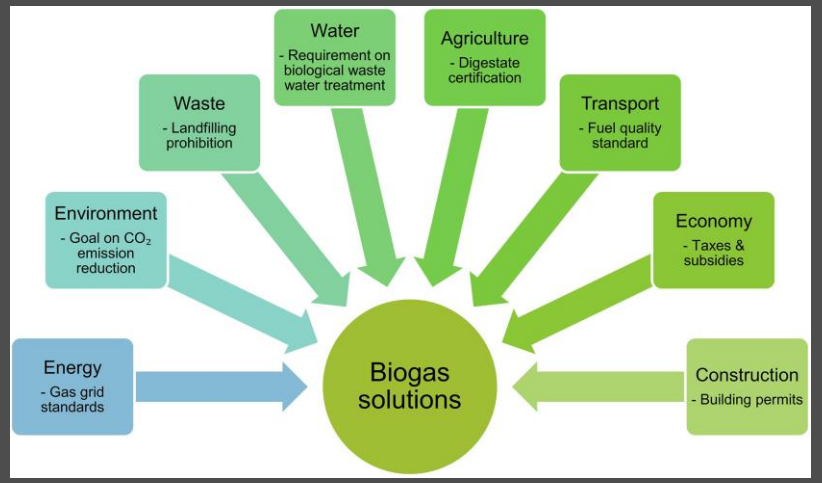
Administrative levels



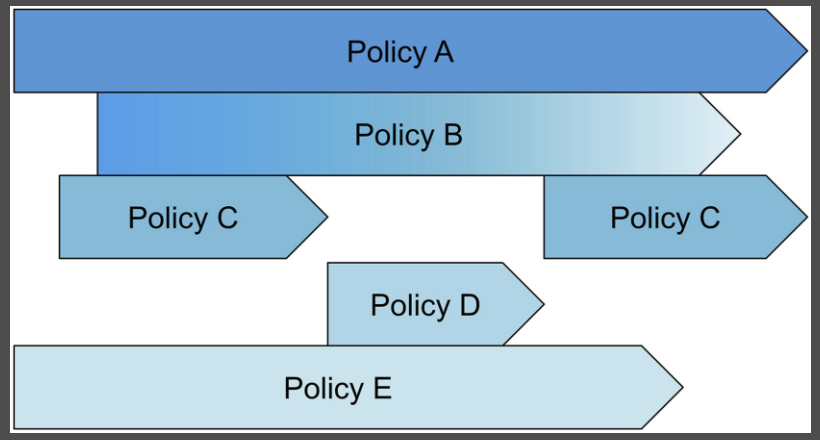
Parts of the value chain



Administrative areas, cross-sector



The temporal dimension



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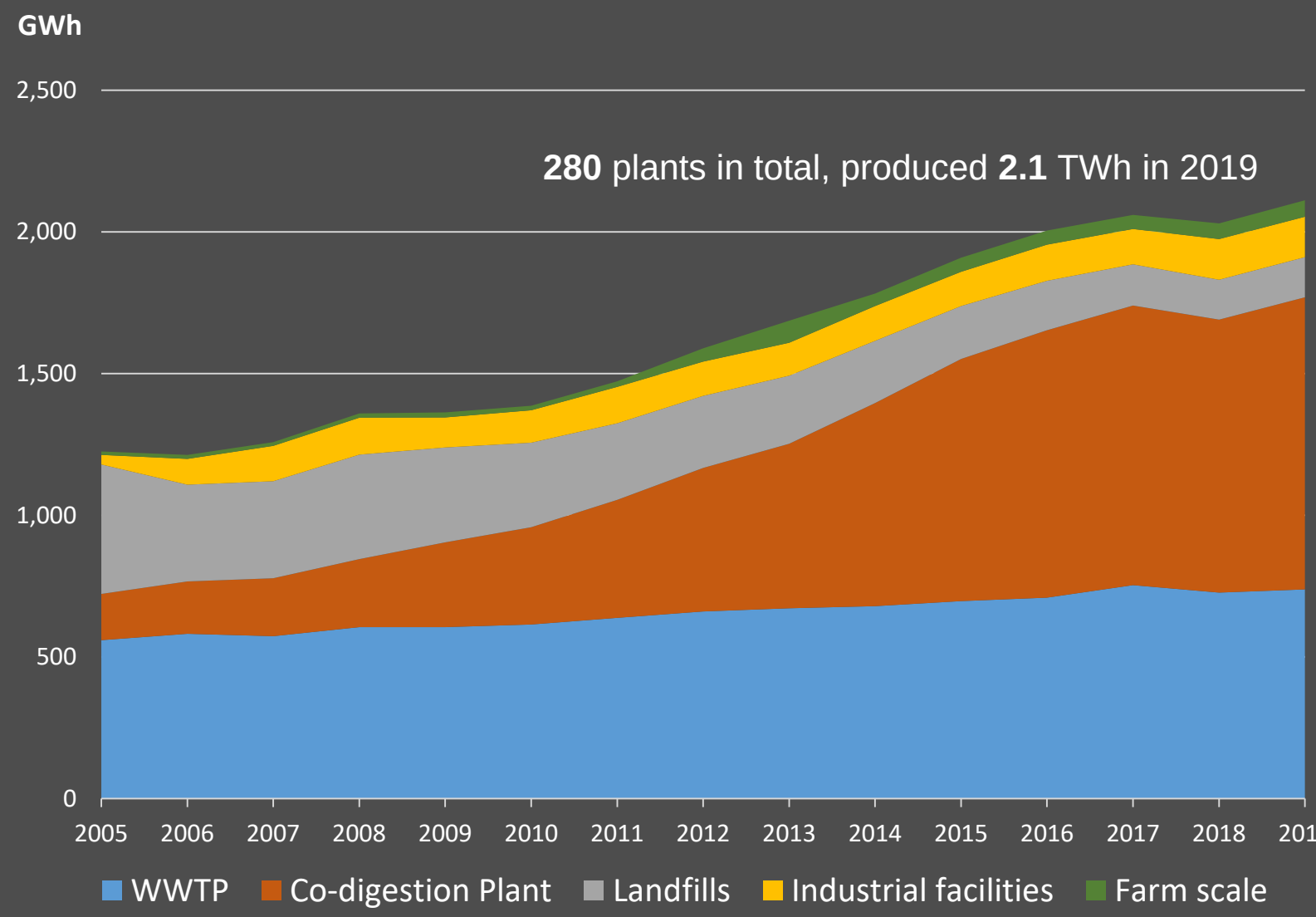
Production of biogas in Sweden

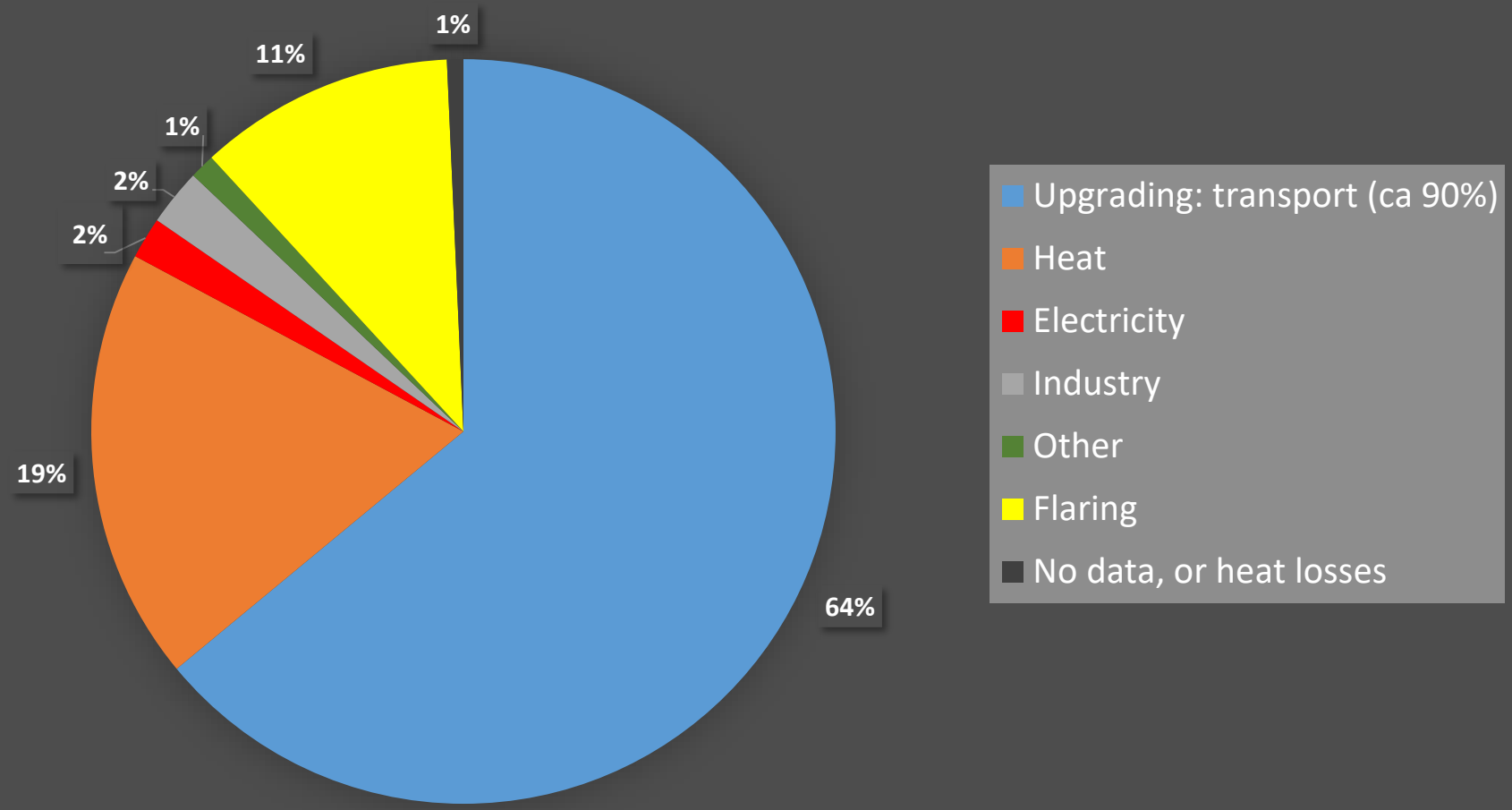


Enabling national policies
Landfill ban for organic waste
Climate investment grants; up to 50%
Tax exemption for fuel
National goals for collection of food waste

Sector policy integration by local and regional authorities

1.8 TWh/yr imported from Denmark

Use of biogas in Sweden, 2019

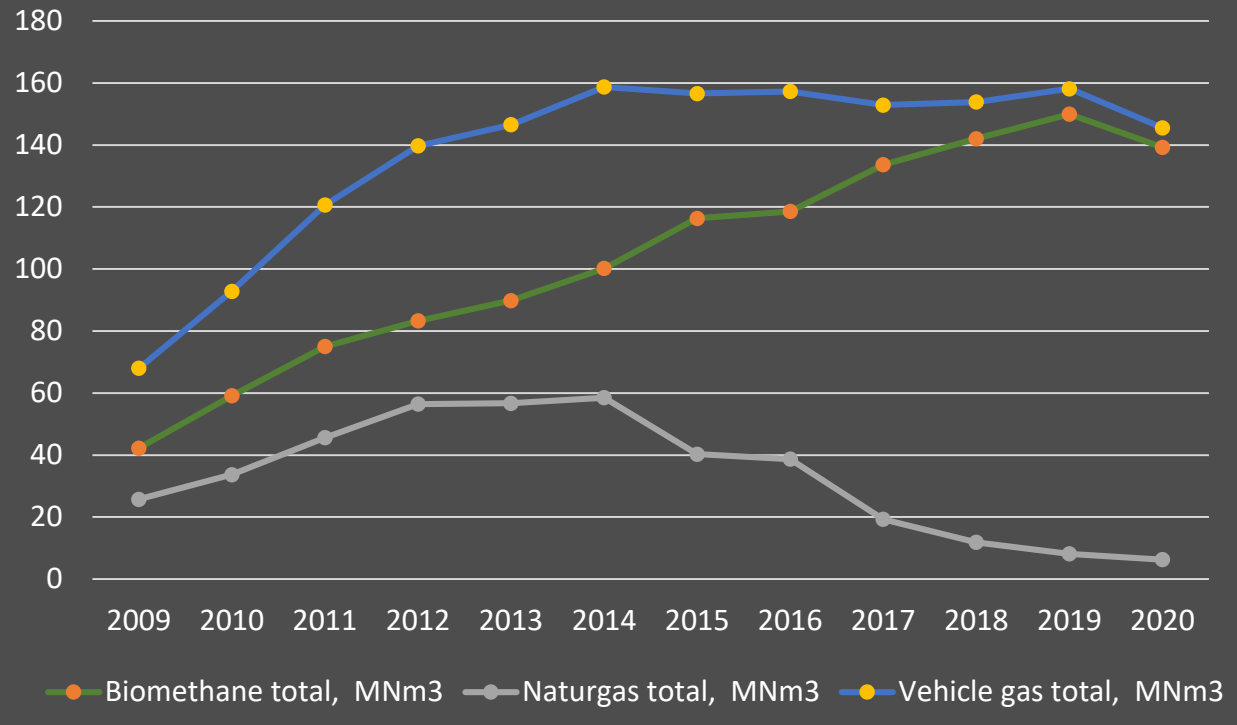


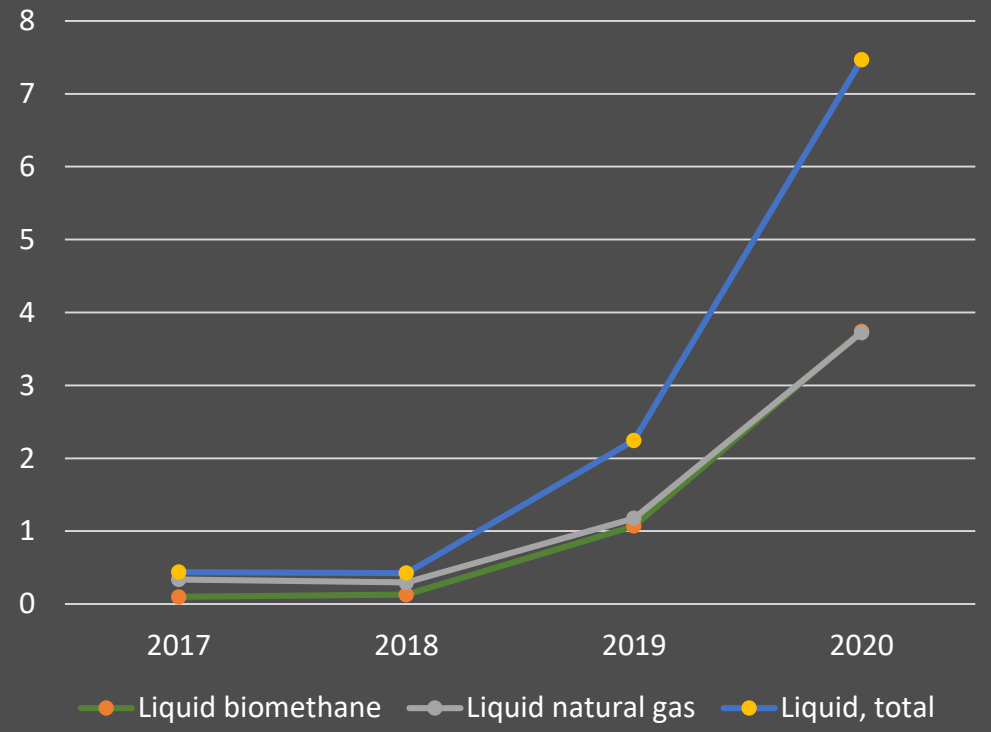
Biogas involve high transaction costs: in Sweden mainly competitive in the transport sector

About 1.3 TWh/y upgraded from 68 upgrading plants, of which about 0.5 TWh was grid injected. About 0.8 TWh used locally or trucked to filling stations.

About 30% of the **imported** gas was used as vehicle fuel in 2018 (ca 500 GWh of 1.6 TWh)

Gas as vehicle fuel, Sweden

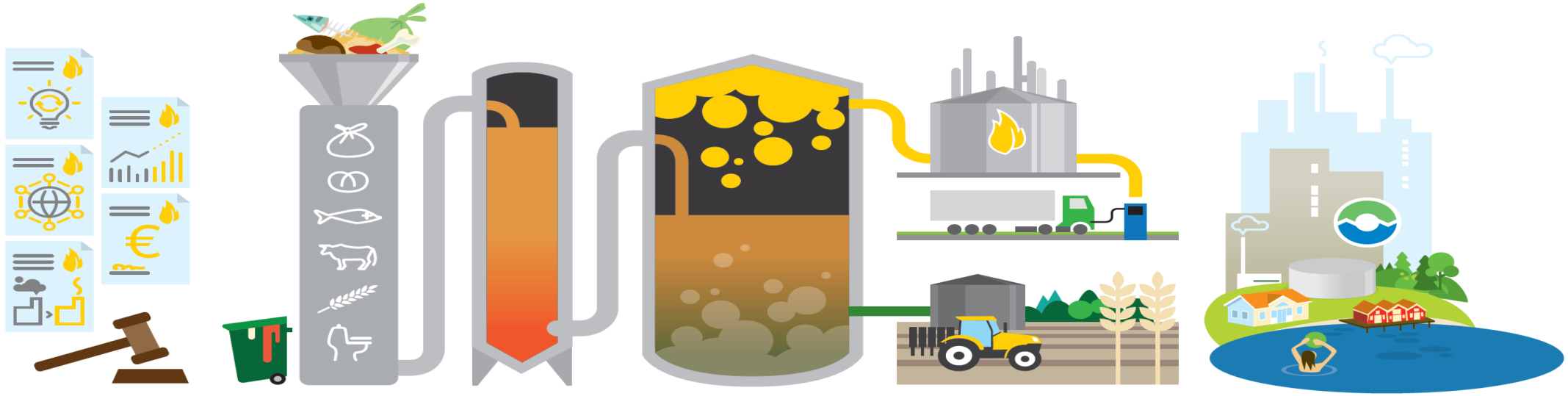


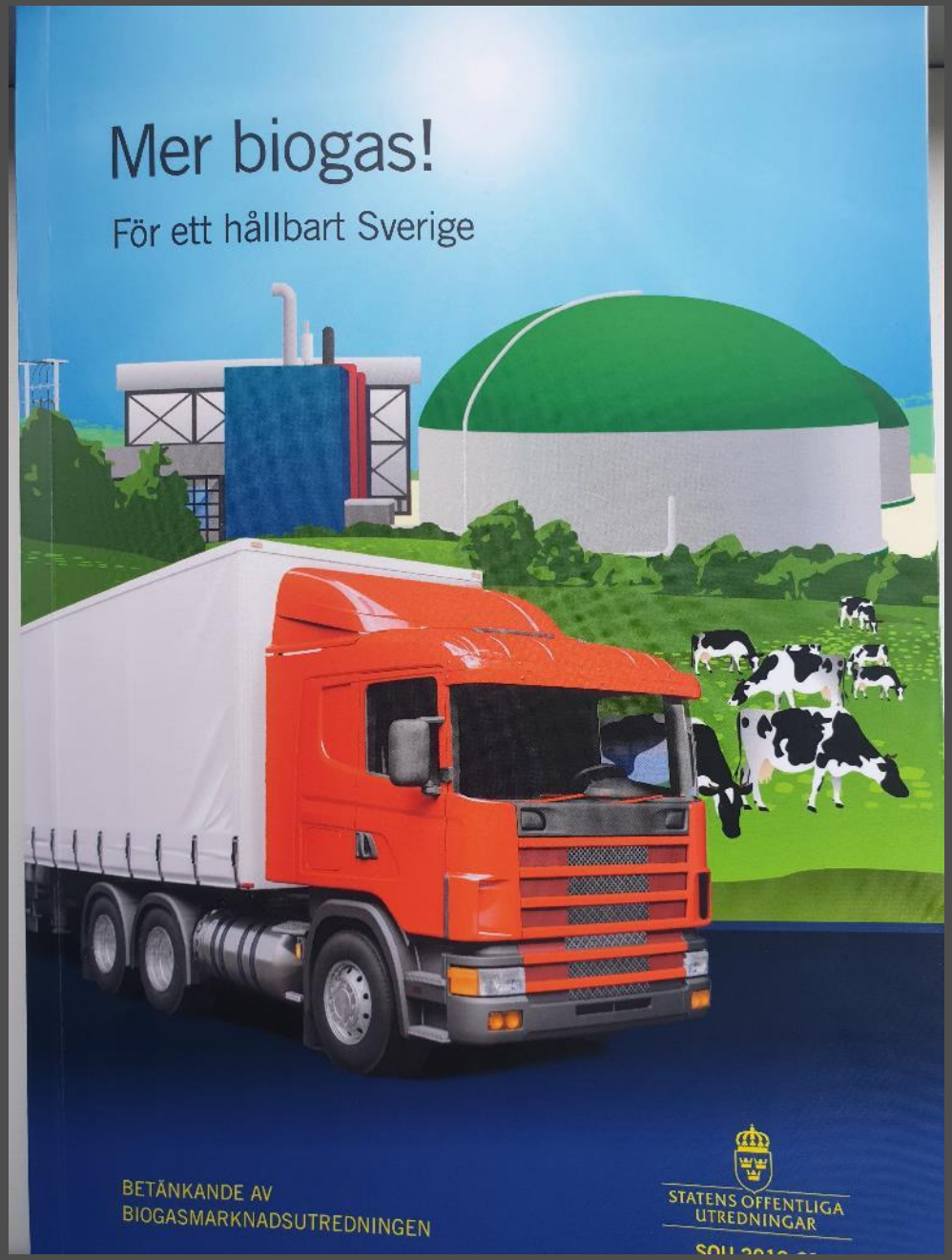


Why stagnating biogas development in Sweden?

Tax exemption for fuel: only short-term decisions
Almost no marketing: lack of the right actors
Focus on electrification of transports influencing policy

Ten year tax exemption
Private actors entrance to market
?





National inquiry into the Swedish biogas sector, December 2019; More biogas – For a sustainable Sweden (not yet implemented)

Triggered by competition from Danish biogas import

Suggesting a **national goal of 10 TWh** production of biogas 2030 of which 7 from anaerobic digestion.

Support scheme for anaerobic digestion (10 years with decreasing support and within the frame of the national goal)

- **Methane reduction** premium for manure-based biogas: ~ € 0.040 per kWh
- Premium for **upgrading**: € 0.025 per kWh
- Premium for **liquefaction**: ~ € 0.010–0.015 per kWh
- New feedstocks mainly from **agricultural sector**

Upgrading - biomethane for transport & industry!

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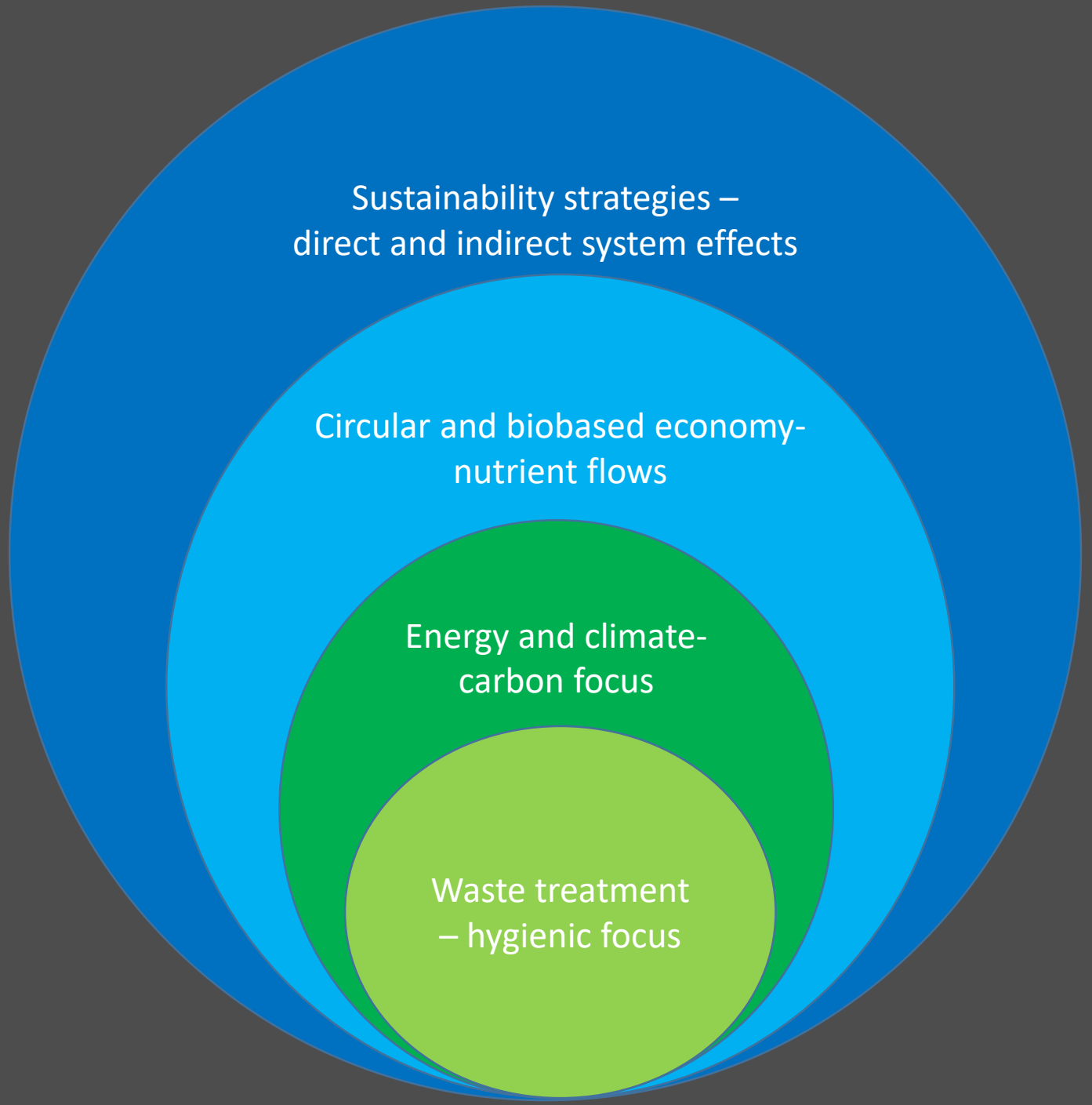
The framing and identity of biogas solutions



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