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Policy advice on low-carbon policies for Ukraine

# Pathways for reforming Ukraine's carbon tax

## Towards an ETS-compatible upstream tax with an expanded scope

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# **Background:** Why reforming the carbon tax? (1/2)

- **Challenge: full alignment with EU climate legislation and policy instruments** while repelling the russian full-scale invasion.
- **EU accession process**: Ukraine needs to significantly **step up climate policy ambition** to reach new **2050 climate neutrality target**
- **Carbon pricing:** Most efficient path to cost-effective, cross-sectoral emissions reductions
  - either stepping up carbon taxation (currently <1 EUR/$tCO_2$)
  - or introducing emissions trading system (ETS)
  - or **combining both**

➢ **Reformed carbon tax could serve as a complementary tool to ETS**

- UA-ETS will cover mostly **larger** energy and industrial installations
- Reformed carbon tax could cover **smaller** energy and industrial installations, as well as emissions from **buildings, road transport and additional sectors**
- Could be **aligned with the scope of the EU ETS 2** and gradually approach expected EU ETS 2 prices**, facilitating Ukraine's EU accession process**

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# **Background:** Why reforming the carbon tax? (2/2)

- **UA-ETS will only cover larger installations >20 MW** (total rated thermal input) if following EU ETS 1 scope

➢ **Carbon tax** covering smaller installations can **level the playing field** between larger and smaller installations and avoid carbon leakage to smaller installations

  - particularly relevant for the energy sector, where a lot of **small distributed gas-fired generation** will be constructed
  - Carbon tax ensures that gas-fired flexible fast-start capacities are **used as efficiently as possible** for peak services only (when needed)
  - Improves capture prices for renewable energy supply (RES) and arbitrage possibilities for battery energy storage systems (BESS) → more RES & BESS investments

- **ETS will not cover buildings and transport sector, low economic incentives to decarbonise**

➢ **Carbon tax** extended to buildings and transport sectors can improve the economic incentives for decarbonisation, reduce payback periods for energy-efficient thermal modernisation of buildings, heat pumps, EVs, etc.

  - Requires **complementary policies** such as subsidised loans & infrastructure investments

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# Moving from a downstream to an upstream carbon tax


- **<u>Challenge:</u>** How to cover many small consumers, when expanding coverage to **buildings, road transport and additional sectors?**

➢ **<u>Solution:</u> Upstream carbon tax**

- **Taxing fuels** when produced/imported or **when released for consumption** (i.e. when sold to final consumers)
- Much **smaller administrative burden** by taxing fewer entities, leveraging existing data systems and reducing risks of manipulation

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# Avoiding a double burden from carbon tax and ETS


- **Challenge:** How to avoid a double burden from an **upstream** carbon tax and the **downstream** ETS?

➢ **Solutions:**

- **Tax rebate** (Swedish approach)
- **Tax exemption** (German approach)

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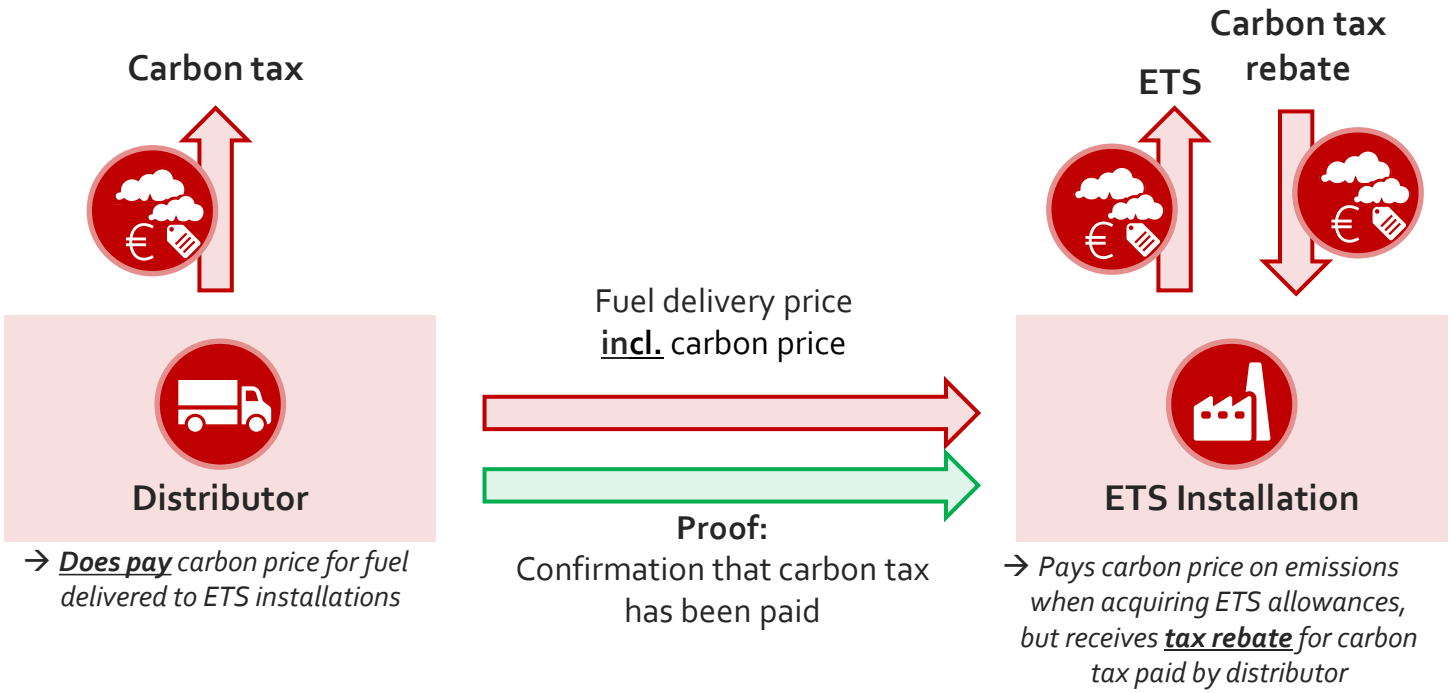
# "Swedish" approach: Tax rebate for downstream ETS installations




- Distributor pays the tax for the entire volume of fuels released for consumption and does not have to trace fuels to the end-consumer
- ETS installations only follow their regular MRV obligations under the downstream ETS and use the *confirmation of use* prepared under those obligations to request a carbon tax rebate at little extra transactional cost

➢ **Lower reporting obligations and therefore a lower bureaucratic burden for companies**

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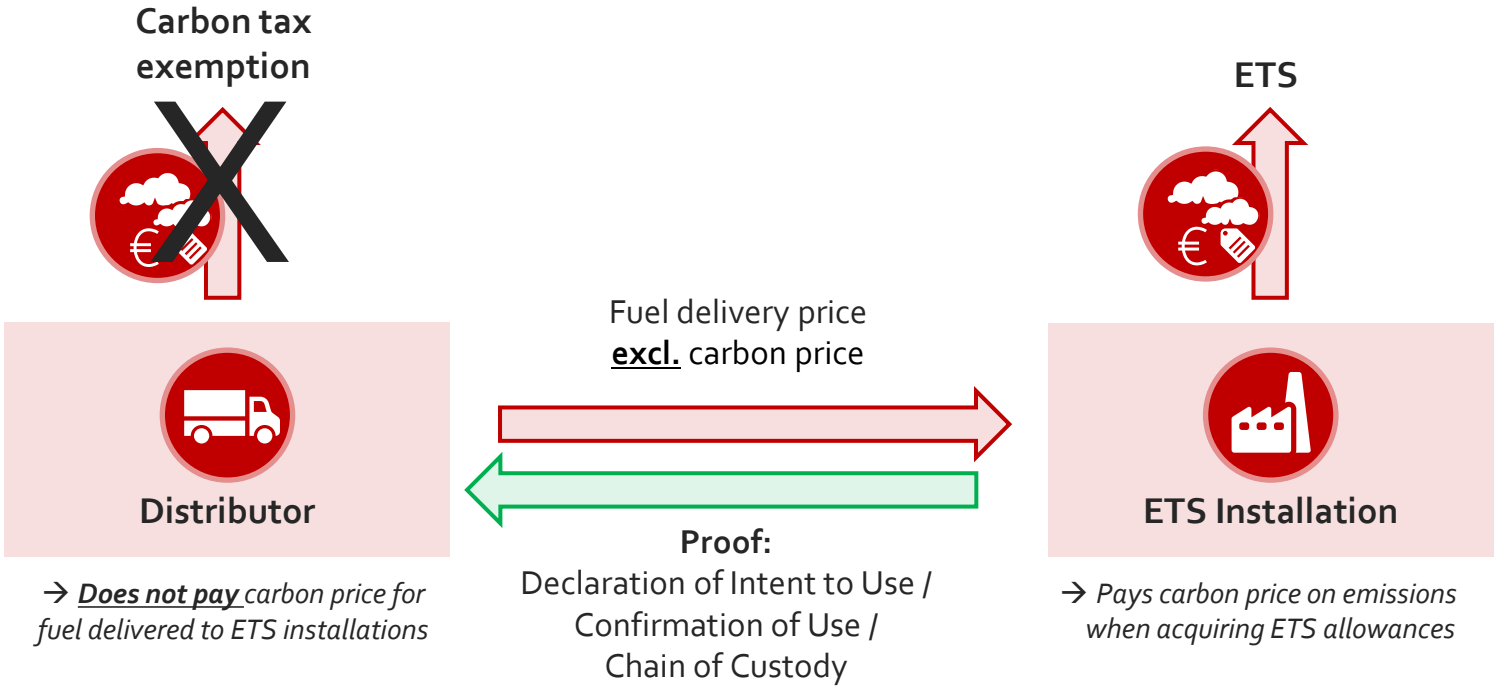
# "German" approach: Tax exemption for upstream distributors




- A **declaration of intent to use** and **confirmation of use** or a **chain of custody** (chain of traceable contractual arrangements and invoices) is used to prove fuel use in downstream ETS installation → distributor requests carbon tax exemption for those fuels

➢ **Requires direct contractual arrangement with the end-users or via intermediaries, more bureaucratically burdensome**

➢ **However, this is EU ETS 2 approach → would prepare Ukraine better for EU accession**

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# **Optional:** Using the carbon tax as a price floor to the ETS (1/2)

- **Carbon price uncertainty is inherent to any ETS**
  - Price is determined by market forces (supply and demand for allowances)
  - Demand depends on economic growth, technological progress and other structural changes to the economy
- **Carbon price uncertainty would be extremely high for Ukraine**
  - Heightened uncertainty regarding the structure of Ukraine's future energy sector and industrial asset base
  - Large uncertainties concerning the timing and dynamics of Ukraine's post-war reconstruction and economic recovery

    → **Large uncertainty about future demand for fossil fuels and thus emissions allowances**

- ➢ **Difficult for UA-ETS allowance cap-setting**
- ➢ **Same cap could lead to extremely different carbon prices under different scenarios for post-war recovery**

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# **Optional:** Using the carbon tax as a price floor to the ETS (2/2)

- Avoiding such a high level of carbon price uncertainty will be paramount for a successful ETS design.
- Without a predictable carbon price, the level of green investment will be significantly lower.

→ **How to reduce carbon price uncertainty in an ETS?**

- **One option:** Price collar with increasing carbon price floor
  - **Carbon tax could serve as a 'top-up' to ETS allowance price** for reaching a guaranteed price floor
  - Instead of fully exempting ETS installations from the carbon tax, the **tax rebate or tax exemption is only granted at the level of ETS allowance prices** (e.g. average weekly or average annual ETS allowance price)*
  - Cumulatively, the carbon tax and ETS would always at least amount to the desired minimum carbon price

➢ **Fully compatible with EU-ETS rules**

- UK used a similar approach to establish a carbon price floor before Brexit

**as long as ETS allowance prices are below the carbon tax rate (otherwise, a full tax rebate / tax exemption applies)*

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# Carbon taxation as part of a wider energy tariff reform

- **Household energy prices**, esp. gas and district heating (DH), are heavily **subsidised** and set **below market levels**
  - Creates significant fiscal and quasi-fiscal losses, underfunding of infrastructure (e.g. DH grids) and debt accumulation
  - Benefits wealthier households more than poorer ones, worsening equity
  - Discourages energy conservation and efficiency investments
- Need to **gradually transition to cost-reflective, liberalised prices**
  - **Need for targeted support to vulnerable consumers**
  - Enables investment, reduces fiscal burdens, improves efficiency and equity
- **Coordination with carbon tax required**
  - Energy tariffs must allow **pass-through of carbon prices** to final consumers to ensure the effectiveness of a reformed carbon tax
  - **Social compensation** for **reformed carbon tax** and **energy price liberalisation** should be considered holistically
  - ➢ Should **mitigate excessive effects** on vulnerable households while **maintaining incentives** for energy efficiency and energy conservation

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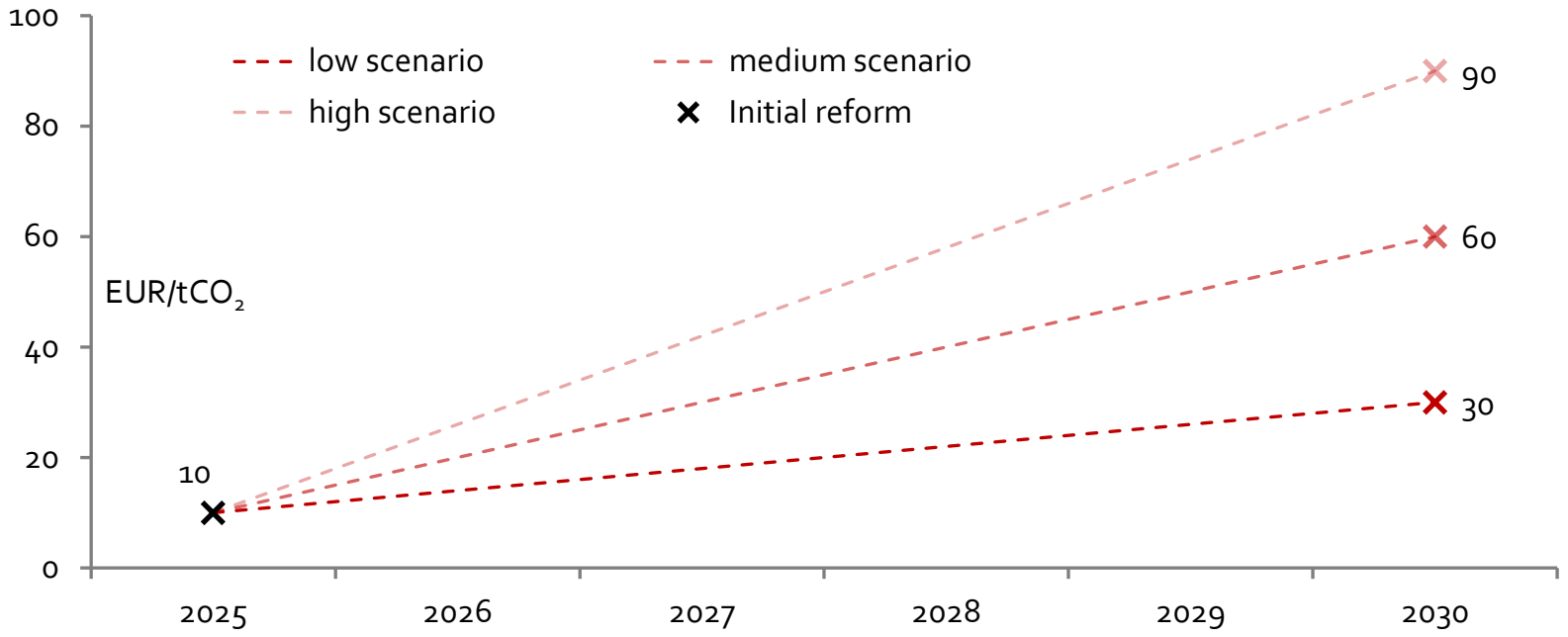
# Estimating impacts from three reform scenarios




- **upstream carbon tax** with a **pre-determined increasing price schedule** covering emissions from buildings, road transport and additional sectors
- One scenario for 2025 (initial reform) and **three price scenarios** for 2030

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# Impact on emissions and carbon tax revenues (2030)

| | Residential | Services | Transport | Total |
|---|---|---|---|---|
| Baseline 2030 emissions ($MtCO_2eq$) | 20 – 25 | 5 – 7 | 15 – 20 | 40 – 52 |
| Savings, low scenario ($MtCO_2eq$ and %) | 0.8 – 1.0 (-3.8%) | 0.2 – 0.3 (-3.8%) | 0.3 – 0.4 (-2.2%) | 1.3 – 1.7 **(-3.2%)** |
| Savings, medium scenario ($MtCO_2eq$ and %) | 1.5 – 1.9 (-7.7%) | 0.4 – 0.5 (-7.7%) | 0.7 – 0.9 (-4.4%) | 2.6 – 3.3 **(-6.4%)** |
| Savings, high scenario ($MtCO_2eq$ and %) | 2.3 – 2.9 (-11.5%) | 0.6 – 0.8 (-11.5%) | 1.0 – 1.3 (-6.7%) | 3.9 – 5.0 **(- 9.7%)** |

**Table 1: Emissions savings by sector and scenario**

*Source: own calculations and modelling*

| | Residential | Services | Transport | Total |
|---|---|---|---|---|
| Low scenario (EUR mn) | 600 – 700 | 100 – 200 | 400 – 600 | 1,200 – 1,500 |
| Medium scenario (EUR mn) | 1,100 – 1,400 | 300 – 400 | 900 – 1,100 | 2,200 – 2,900 |
| High scenario (EUR mn) | 1,600 – 2,000 | 400 – 600 | 1,300 – 1,700 | 3,300 – 4,200 |

**Table 2: Government carbon tax revenues by sector and scenario**

*Source: own calculations and modelling*

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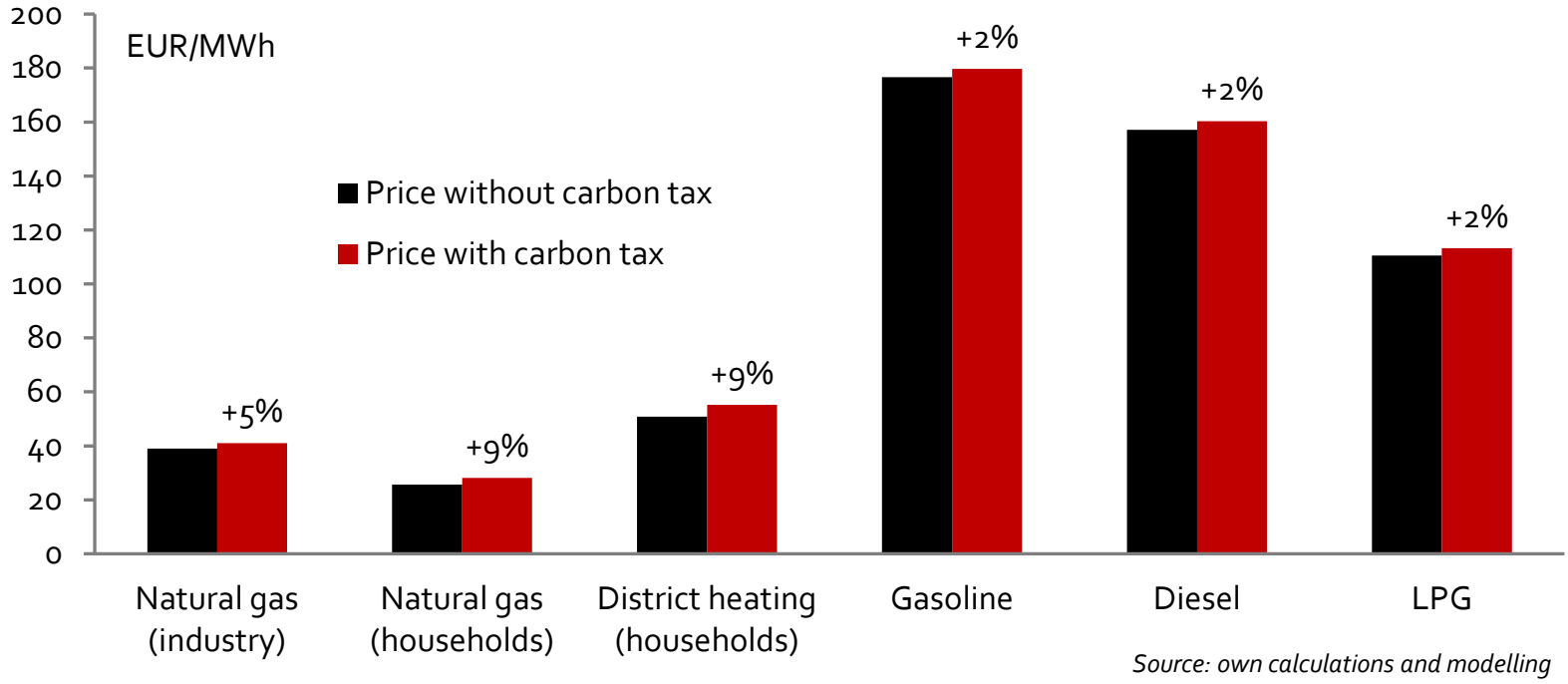
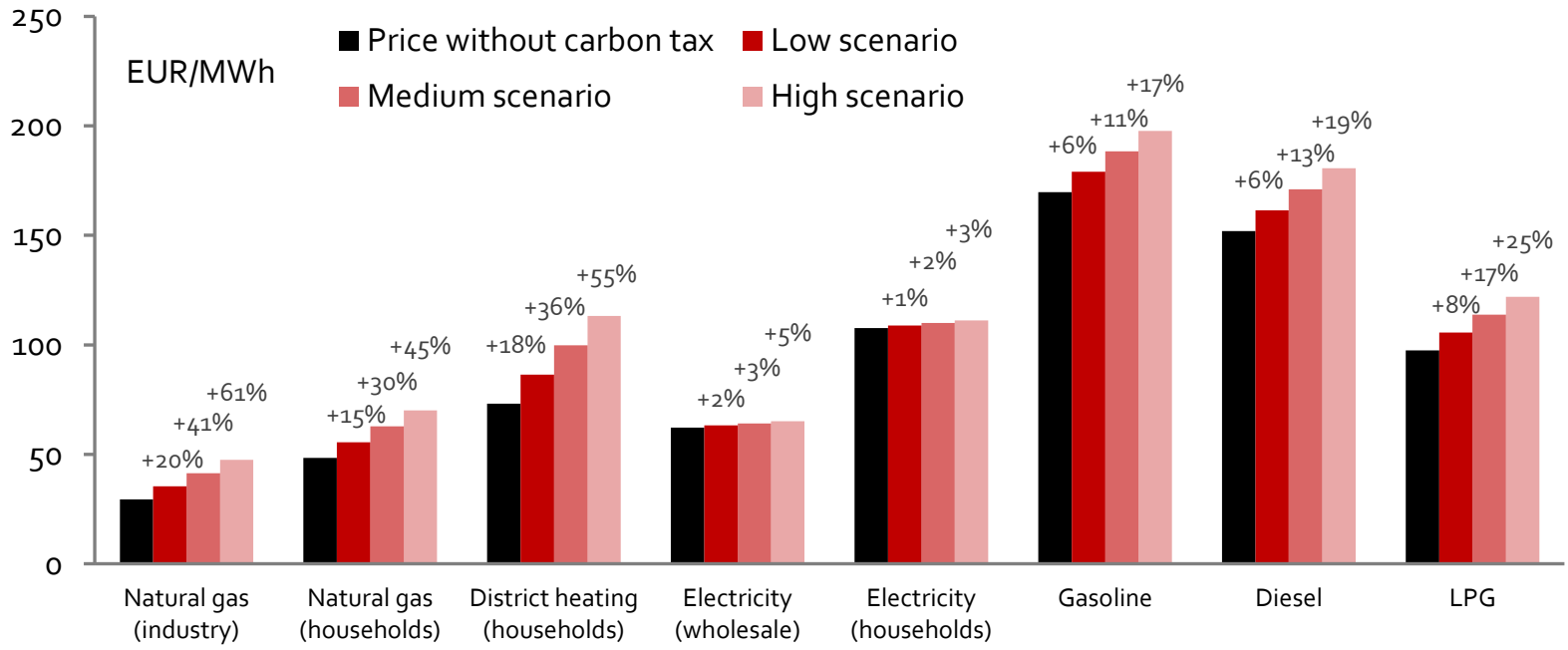
# Impact on energy prices (2025, 10 EUR/$tCO_2$)




*Source: own calculations and modelling*

- Very moderate price increases initially
- +2% for road motor fuels
- +9% for residential district heating and natural gas (+5% gas for industry)

# Impact on energy prices in 2030 – by scenario




*Source: own calculations and modelling*

- More significant price effects by 2030
- Road motor fuels: +6% (gasoline, low scenario) to +25% (LPG, high scenario)
- Residential district heating (natural gas) from +15% (+18%) to +45% (+55%) vs. scenario without carbon tax
- In addition to effects from assumed energy price liberalisation

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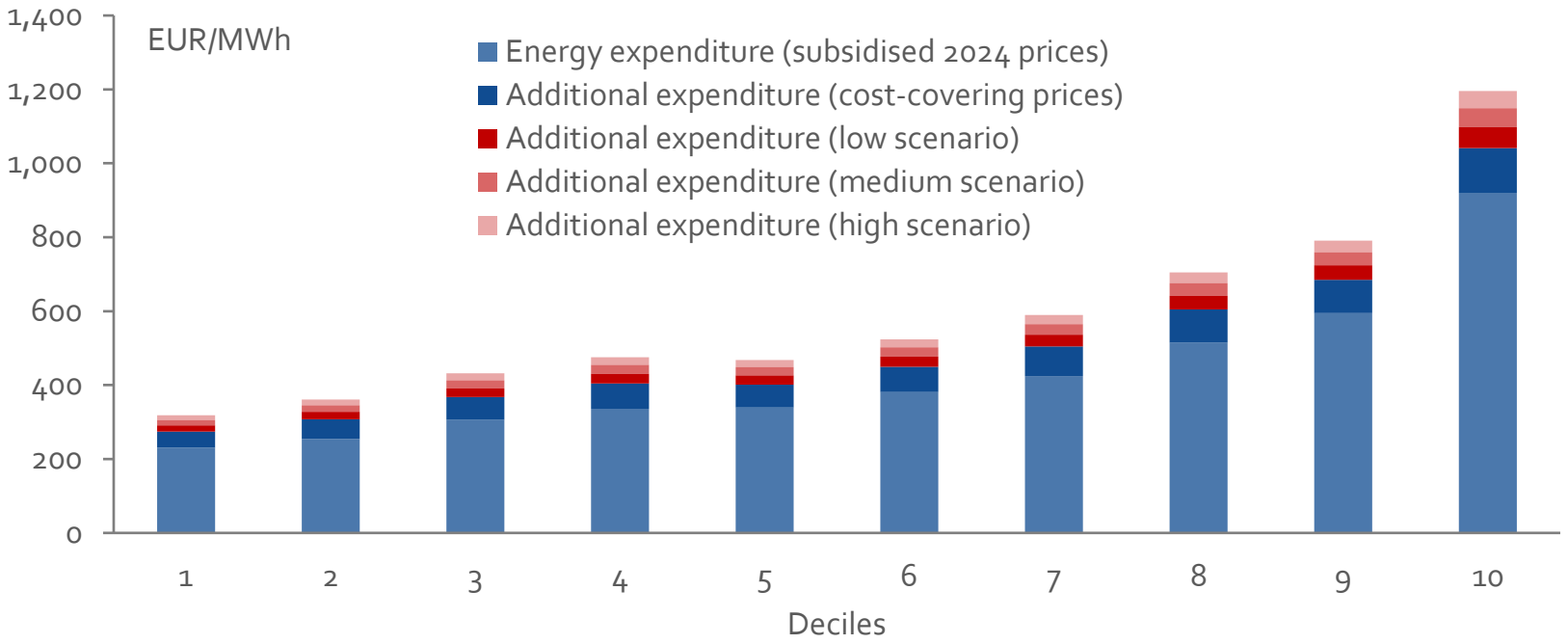
# Impact on household expenditures in 2030 – by scenario




**Total energy expenditure in 2030 by decile under different price scenarios** *Source: own calculations and modelling*

- Effects from **price liberalisation** (reaching cost covering prices) play an equally or even larger role than the carbon tax for increases in energy expenditure
- Carbon cost only takes a **moderate share of the overall energy burden** (between 6-10 % for the medium scenario)

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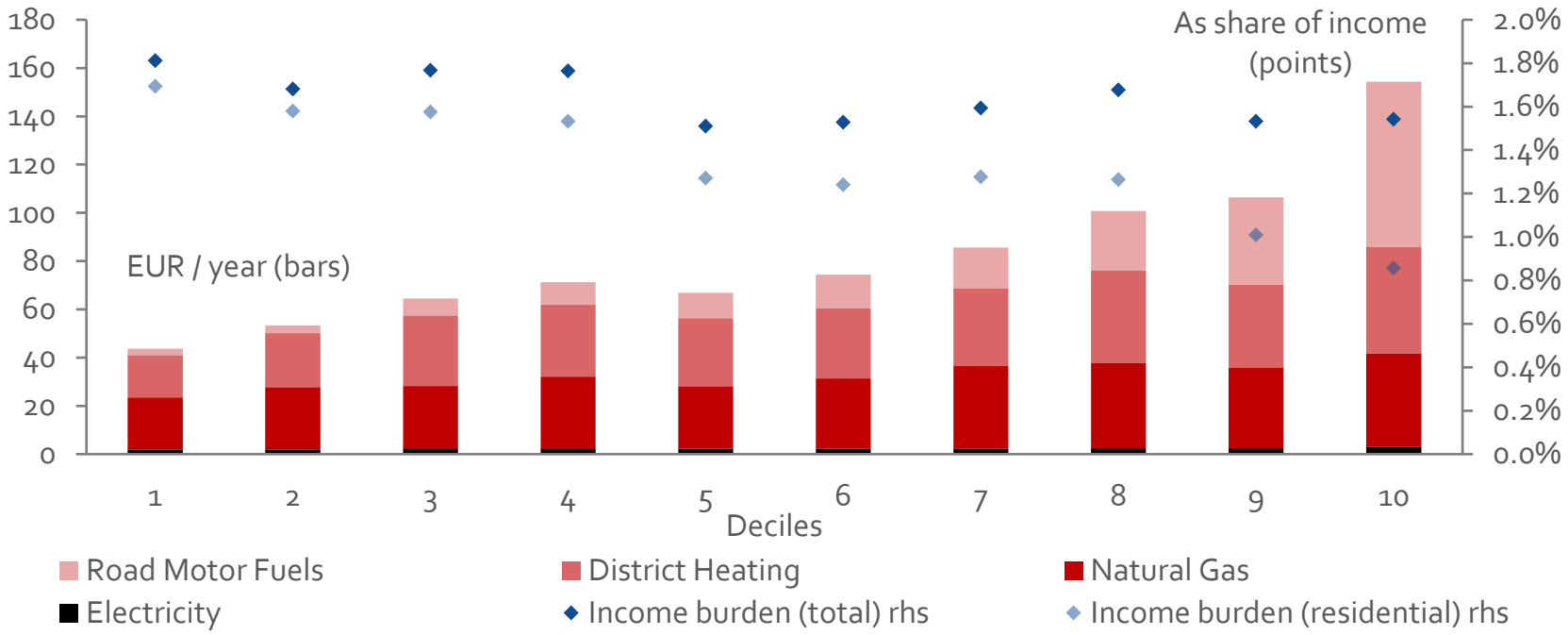
# Impact on household expenditures in 2030 (decomposed)




**Carbon cost per decile, decomposed by fuel (high scenario, 2030)**

*Source: own calculations and modelling*

- **Natural gas and district heating** are main contributors of carbon cost for low- and medium-income households
- **Road motor fuels** increasingly important for higher income households
- **Regressive effect** (as share of income), esp. when considering residential energy

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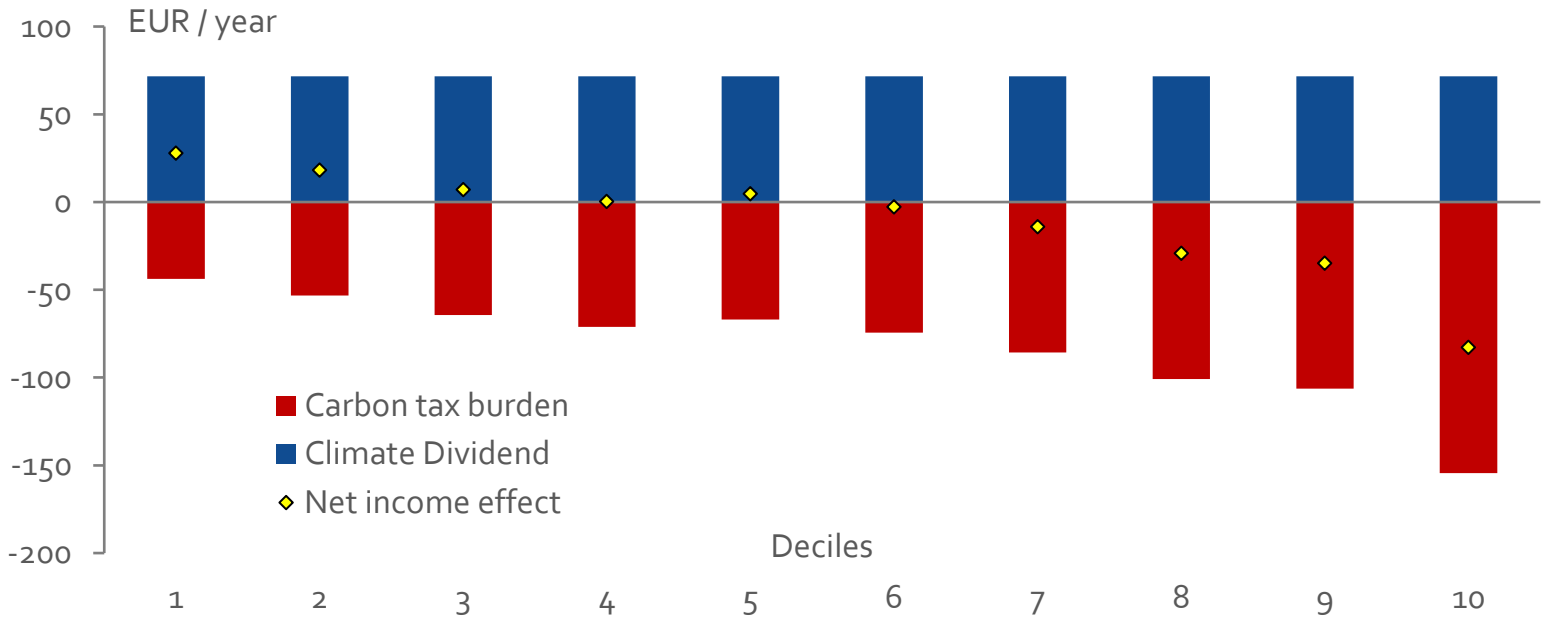
# Returning revenues via a climate dividend




**Distributional impact with climate dividend (high scenario, 2030)** *Source: own calculations and modelling*

- **Simulated climate dividend:** 100% of revenues levied from residential consumers returned to households via household-size adjusted cash transfers
- **Can turn a regressive into a progressive policy:** Net-positive income effects for lower half of income distribution

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# Conclusion

- **Reformed (upstream) carbon tax** could serve as a **powerful complementary tool to ETS**
  - Can pave the way for ETS 2 before Ukraine's EU accession
  - Fully compatible with ETS (1), without double burden for ETS-covered installations
  - Level playing field between large and small industrial/energy installations, and between different technologies in buildings and transport sector
- Can stimulate **emissions reductions of up to 10%** by 2030 in the buildings and transport sectors (vs. a scenario without a carbon tax)
- ETS and carbon tax should not be the only policy for decarbonisation
  - **Can make complementary policies much more effective** (e.g. targeted support for renewable energy and energy efficiency investments)
- **Regressive distributional effects for households significant**

➢ But **can be mitigated via a climate dividend mechanism** (returning revenues to households via cash transfers)

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# Further readings…


Link to publication


Link to publication

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