



MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE



SOGESID

1° Italian Catalogue of EHSs & EFSs

Environmentally Harmful Subsidies & Environmentally Friendly Subsidies

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Overview

- Why the Catalogue
- Definition of environmental subsidies and their identification in the international literature
- Methodology adopted in the Catalogue
- Overview of the Catalogue's main results
- Focus on excise differential between gasoline and diesel
- Main recommendations and policy suggestions
- What is missing? What further subsidies to further analyze in future editions?

One year of Environmental Economics at MATTM

CATALOGO DEI SUSSIDI AMBIENTALMENTE FAVOREVOLI E DEI SUSSIDI AMBIENTALMENTE DANNOSI 2016

COME STABILITO DALL'ARTICOLO 68 DELLA LEGGE 28 DICEMBRE 2015, N. 221
("DISPOSIZIONI IN MATERIA AMBIENTALE PER PROMUOVERE MISURE DI GREEN ECONOMY
E PER IL CONTENIMENTO DELL'USO ECCESSIVO DI RISORSE NATURALI")
DETTA COLLEGATO AMBIENTALE
(G.U. SERIE GENERALE N. 13 DEL 18-1-2016)



Direzione Generale per lo sviluppo sostenibile, per il danno ambientale e per i rapporti con l'Unione
Europea e gli organismi internazionali (DVS) - U.A.T. Segret

1st Catalogue of EHS and EFS (Annual)

PRIMO RAPPORTO SULLO STATO DEL CAPITALE NATURALE IN ITALIA

2017

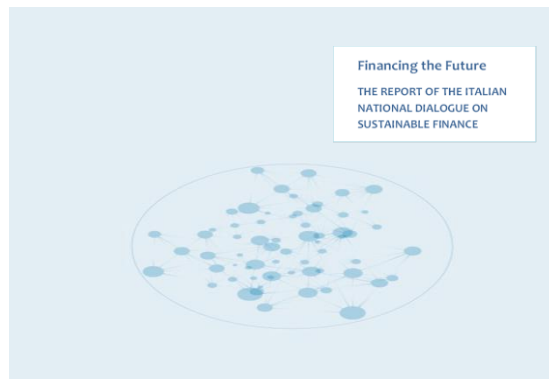
Comitato per il Capitale Naturale



1st Natural Capital Report



G7 – Environment:



Financing the Future
THE REPORT OF THE ITALIAN
NATIONAL DIALOGUE ON
SUSTAINABLE FINANCE

National Dialogue on Sustainable Finance



**STRATEGIA NAZIONALE
PER LO SVILUPPO SOSTENIBILE**

National Strategy on Sustainable Development Macroeconomic modelling

International recommendations

- G20 (Seul - November 2010): “rationalize and phase out over the medium term inefficient fossil-fuel subsidies that encourage wasteful consumption”.
- G7 (Ise-Shima - 26-27 May 2016): “Given the fact that energy production and use account for around two-thirds of global GHG emissions, we recognize the crucial role that the energy sector has to play in combating climate change. We remain committed to the elimination of inefficient fossil fuel subsidies and encourage all countries to do so by 2025.”

OECD recommendations

- Removal or reform of EHSs, in particular phasing-out FFS (OECD, 2015).
- Warning on «inertia»: in OECD countries, 2/3 of EHSs introduced before the year 2000 (OECD, 2015).
- Starting at the end of the 90s, OECD developed different methodological tools to identify EHSs:
 - Quickscan(1998)
 - Checklist (2005)
 - Integrated assessment framework (2007)

OECD recommendations/2

Italy - Environmental Performance Reviews - 2013

- Introduce a systematic monitoring system of (current and in the pipeline) direct and indirect subsidies, in view of their potential environmental impact;
- Pursue the promotion of renewable energy in the framework of a national energy strategy, guarantee the consistency of incentives and their relative regulatory framework and adapt them to the decrease in costs of green technologies connected to renewable energy;
- Rationalize the incentives for energy efficiency and ensure that existing subsidies contribute to the abatement of entry barriers in a cost-effective manner; encourage the use of white certificates, and expand them, especially to the transport sector;

European Semester

- Develop a fiscal framework that promotes sustainable development and pursue the «polluter-pays-principle», leveraging investments in energy efficiency, and encouraging durability and reparability of goods;
- Gradually remove environmentally harmful subsidies, including fossil-fuel subsidies, and shift taxation from income to pollution and natural resources.

International think tanks recommendations

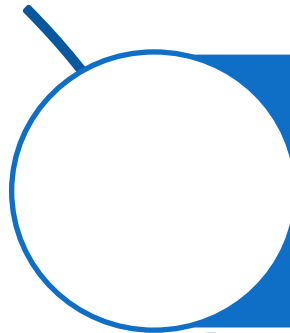
- **Green Budget Europe:** Reform EHS, remove FFS and introduce a carbon tax; shift the fiscal burden from labour and firms towards pollution and natural resources
- **IEEP for the European Commission:**
Roadmap for the removal of EHSs:
 - Need for high quality and transparent data;
 - Do not act in isolation;
 - Build a coalition;
- **GSI - Resources for the Future - World Resources Institute - Worldwatch Inst. - Earth Policy Inst. - Sustainable Prosperity**
- **Planetary Boundaries - Club of Rome - Factor 4/5**
- **Wuppertal - GBG-Foes - IDDRI - French Green Fiscal Commission - UK Green Fiscal Reform Commission - Fondazione Sviluppo Sostenibile**

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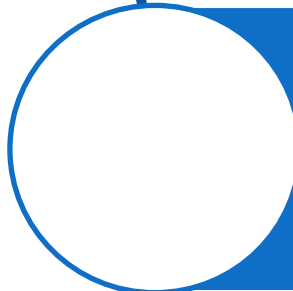
- Why the Catalogue
- Definition of environmentally subsidies and their identification in the international literatures
- Adopted methodology in the Catalogue
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Definition of subsidy

A subsidy
is...



... a **transfer** of money from the State to a private body (WTO)



... a State action providing an **advantage** in terms of revenue (income or minor cost) (OECD)



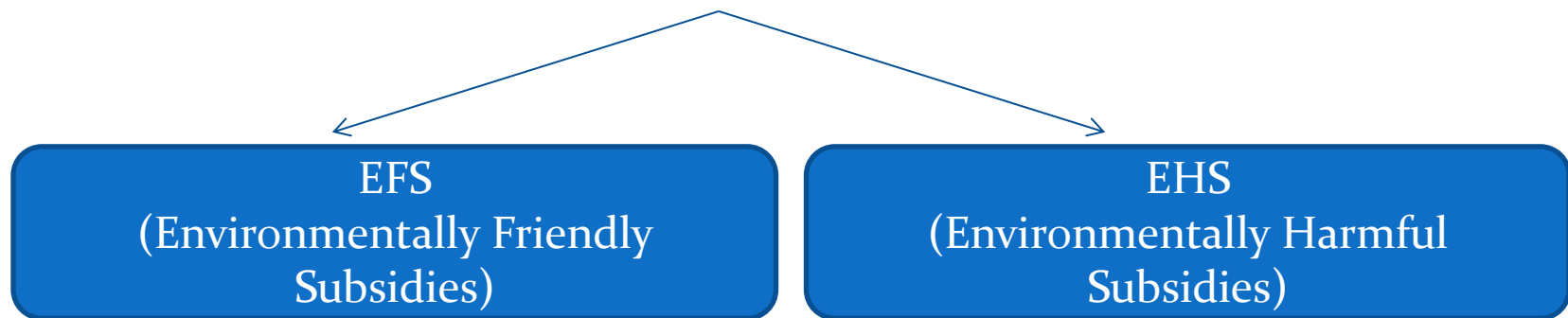
... a **difference** between the observed price and the marginal social cost of production, meaning the cost that internalizes the impact to society (IMF)

In our catalogue:

A subsidy is...

...a measure that keeps prices for consumers below market levels, or prices for producers above market levels, or that reduces costs for producers and consumers through direct or indirect support

(Source: OECD)



Subsidies' classification

| <i>Description</i> | <i>Classification</i> | |
|--|-----------------------|--|
| Direct transfers of funds | On-budget | Direct subsidies |
| Potential direct transfers of funds | | |
| Foregone revenues | Off-budget | Indirect subsidies (Tax expenditures, exemption, tax credit, etc.) |
| Regulatory support mechanisms | | |
| Tax exemptions and rebates | | |
| Selective exemptions of government standards | | |
| Implicit income transfers resulting from a lack of full cost pricing | | |

Estimate of EHS (fossil fuels) in the world

The goal of EHSs identification is to remove or, at least, reform them in order to assure an efficient use of resources.

Their removal may allow for example the reduction of income and corporate taxes.

Some estimates:

- OECD: 160-200 billion \$/year for the years 2010-2014 for fossil fuels (40 Countries);
- IMF: in 2011, 492 billion \$ for fossil fuels (150 Countries);
- IEA: in 2014, 493 billions \$ for fossil fuels (40 Countries).

National experiences (1)



UK

2013 → The report of the Parliament on «energy subsidies in UK»
total energy subsidies: 12,7 billions of GBP

2010 → EEA Study on the potential reform of environmental taxation:
up to € 5 bn of extra revenue in 2015 (+ € 1 bn for EHS removal)

Ireland



France

2012 → “Sainteny report” identifies EHS linked to biodiversity
(estimate: € 3 billions in 2010)

Germany



2007 → reform for a phasing out of coal subsidies within 2018
2014 → EHS report: € 52 billions in 2010
(including guarantee schemes and implicit subsidies)

National experiences (2)

Portugal



1995-2010 → environmental taxation: 11,5% to <5% of total fiscal revenue
2010 → EEA Study on potential reform of environmental taxation:
In 2016, environmental taxation + € 2,2bn (+€0,2bn from additional VAT + €0,7bn from EHS removal)

Mexico



2014 → Starting of energy reform and introduction of a carbon tax on fuels (except natural gas and kerosene for aviation)
2016 → Removal of fuel subsidies through the introduction of fixed excise tax on fuel for transport



USA

2016 → First National Report on fossil fuels (G20): 17 inefficient fossil fuel subsidies worth US\$ 8,2 bl/yr

China



2016 → First National Report on fossil fuels (G20): 9 inefficient fossil fuel subsidies worth US\$ 14,5 bl/yr

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The international literature: how do we identify an environmental subsidy?

OECD:

- PSR approach (then DPSIR)(1993)
- Quickscan (1998)
- Checklist (2005)
- Integrated assessment framework (2007)

European Commission:

- EHS reform tool (2009)

The international literature: how do we quantify an environmental subsidy? (2)

IMF/IEA:

- Price gap approach

IEEP/IISD:

- Resource Rent

European Commission / EEA:

- Marginal Social Cost
- Externalities

How did we classify our subsidies: EFS, EHS, ENS, Uncertain

- **EFS** (EU-Eurostat/UN-SEEA definition): current transfer that is intended to support activities which protect the environment or reduce the use and extraction of natural resources
- **EHS** : Scientific literature review
- **Uncertain**: Unclear environmental impacts. Further investigations are needed
- **ENS**: If reformed, potential positive impacts

Estimated financial effects in international Catalogues and Reports

- **Foregone revenue:** Budget loss (increase) due to the introduction (removal) of a subsidy (e.g. Ceriani, 2011).
- **Price elasticities:** Includes the reaction of beneficiaries and taxpayers to the price variation.
- **Equivalent variation:** The variation of the tax expenditure in current transfers that would keep the beneficiaries' welfare unchanged.

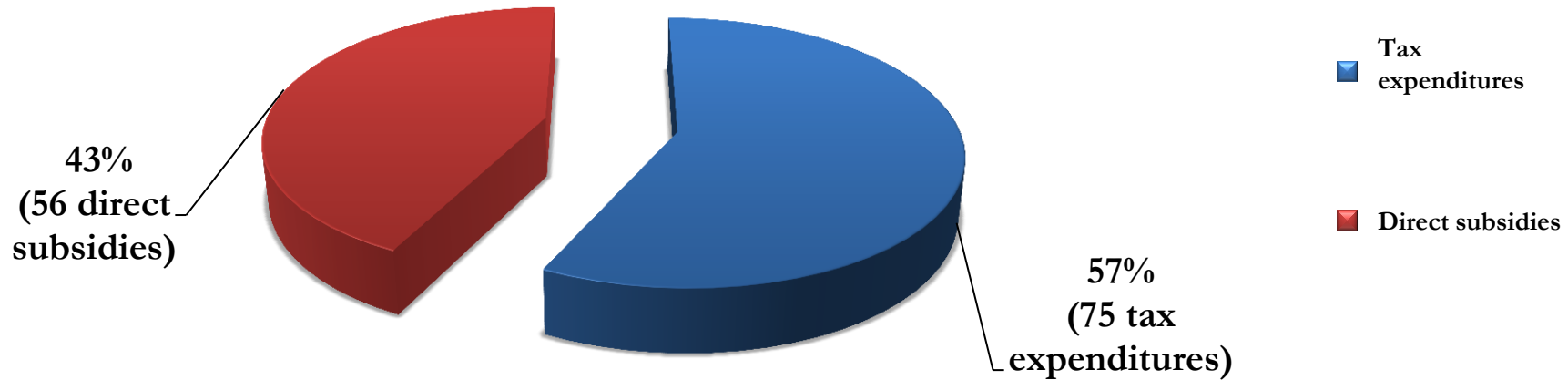
Overview del seminario

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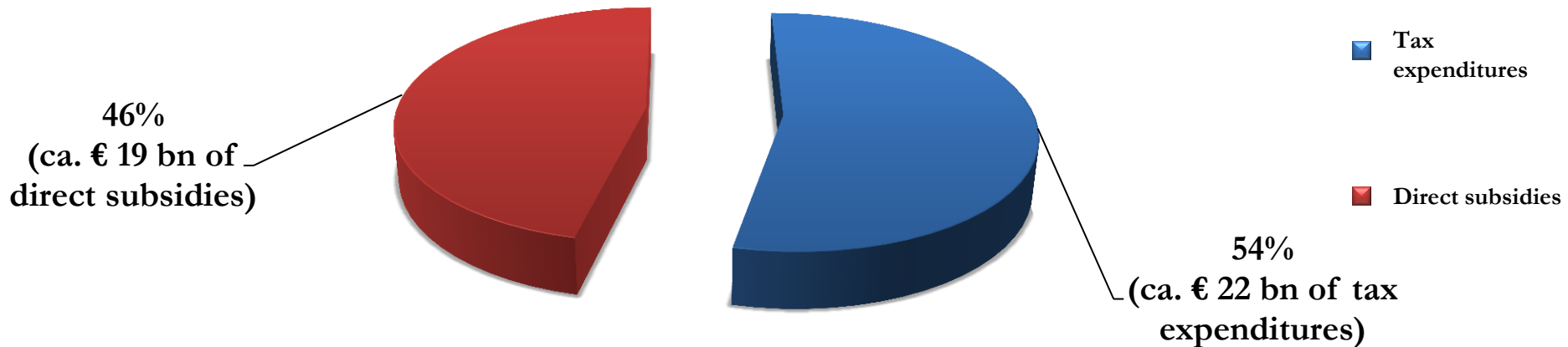
Main results of the Catalogue

- 131 measures amounting to € 41 billion;
- 5 sectors/categories (Agriculture, Energy, Transport, VAT, Other);
- 75 tax expenditures and 56 direct subsidies;
- about € 22 billion of tax expenditures and about € 19 billion direct subsidies.

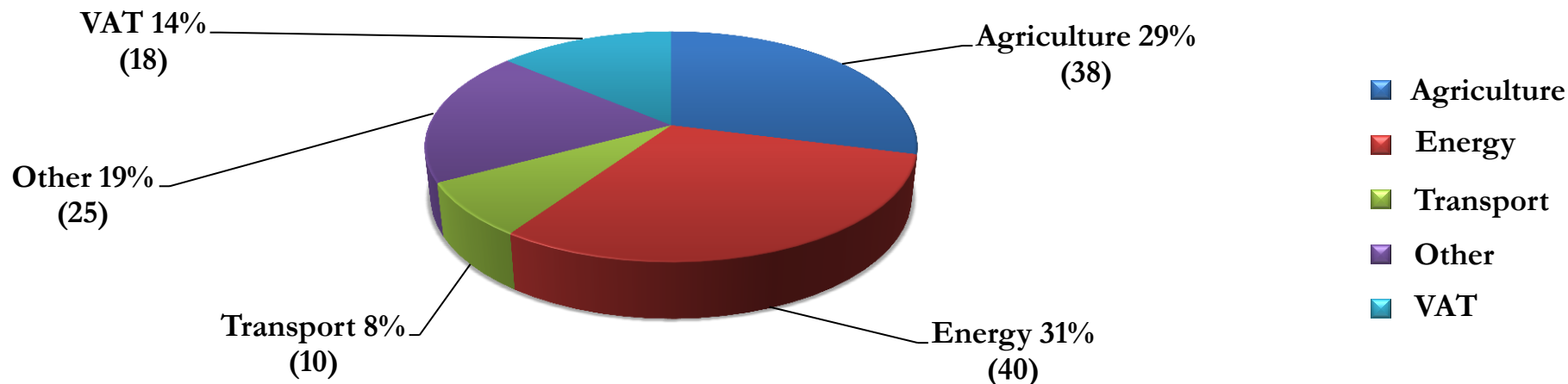
Breakdown of subsidies (n°)



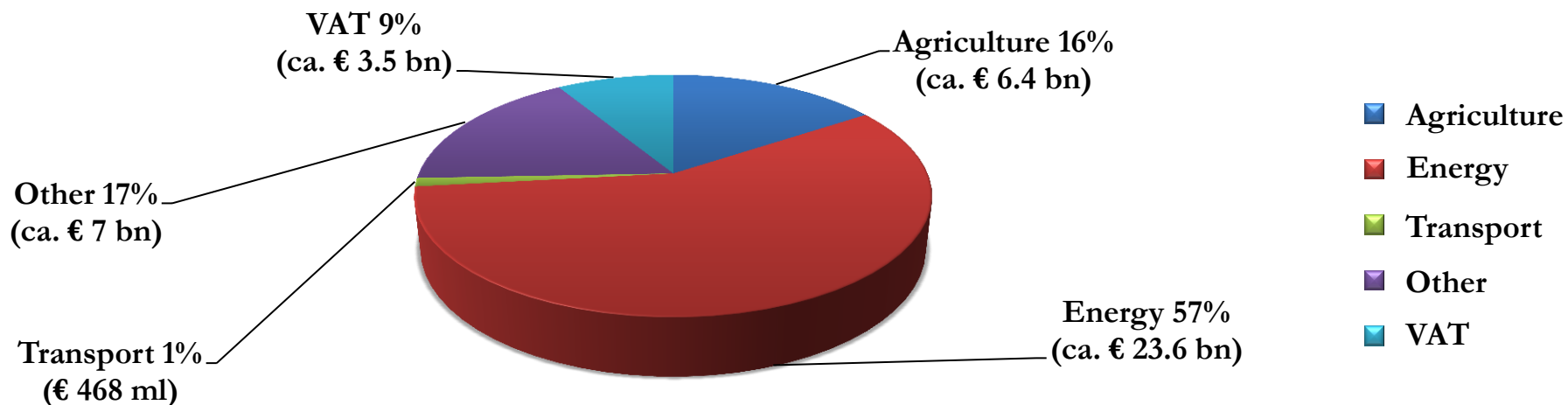
Breakdown of subsidies (€)



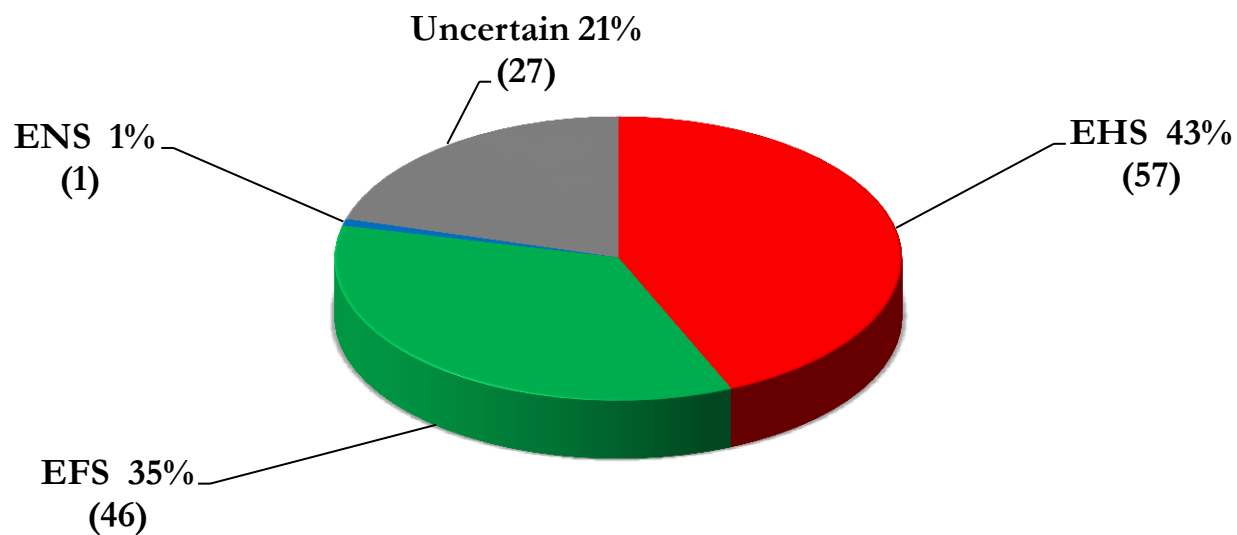
Breakdown of subsidies by categories (n°)



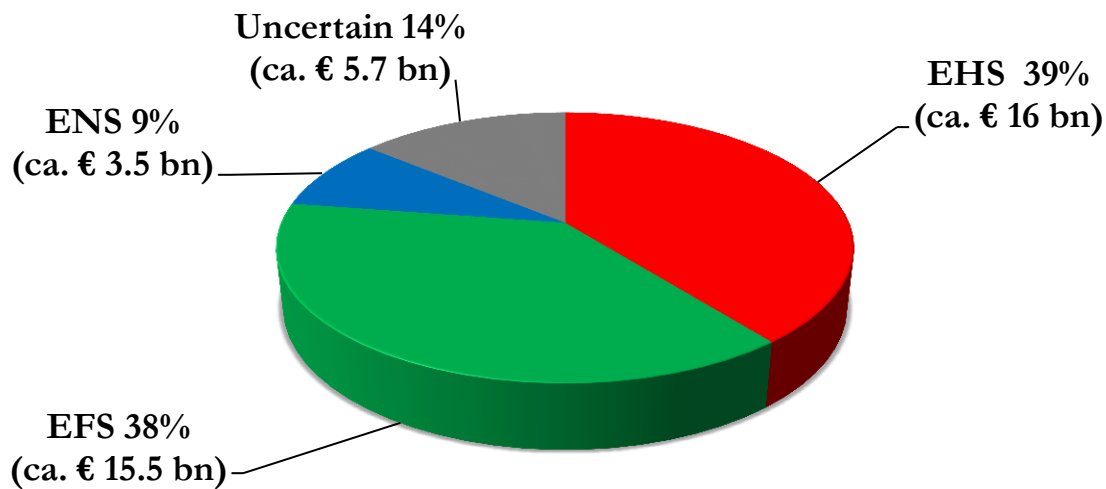
Breakdown of subsidies by categories (€)



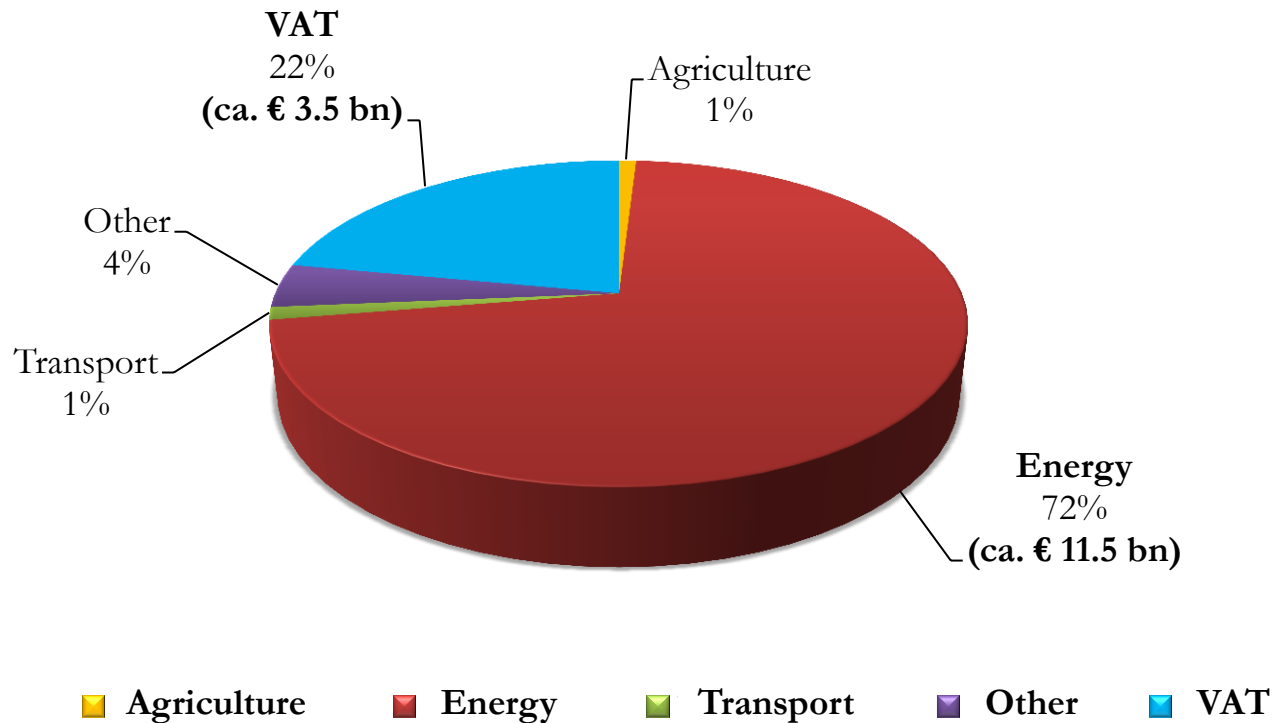
Breakdown of subsidy by types (n°)



Breakdown of subsidy by types (€)



EHS per Categories (€)



Energy:

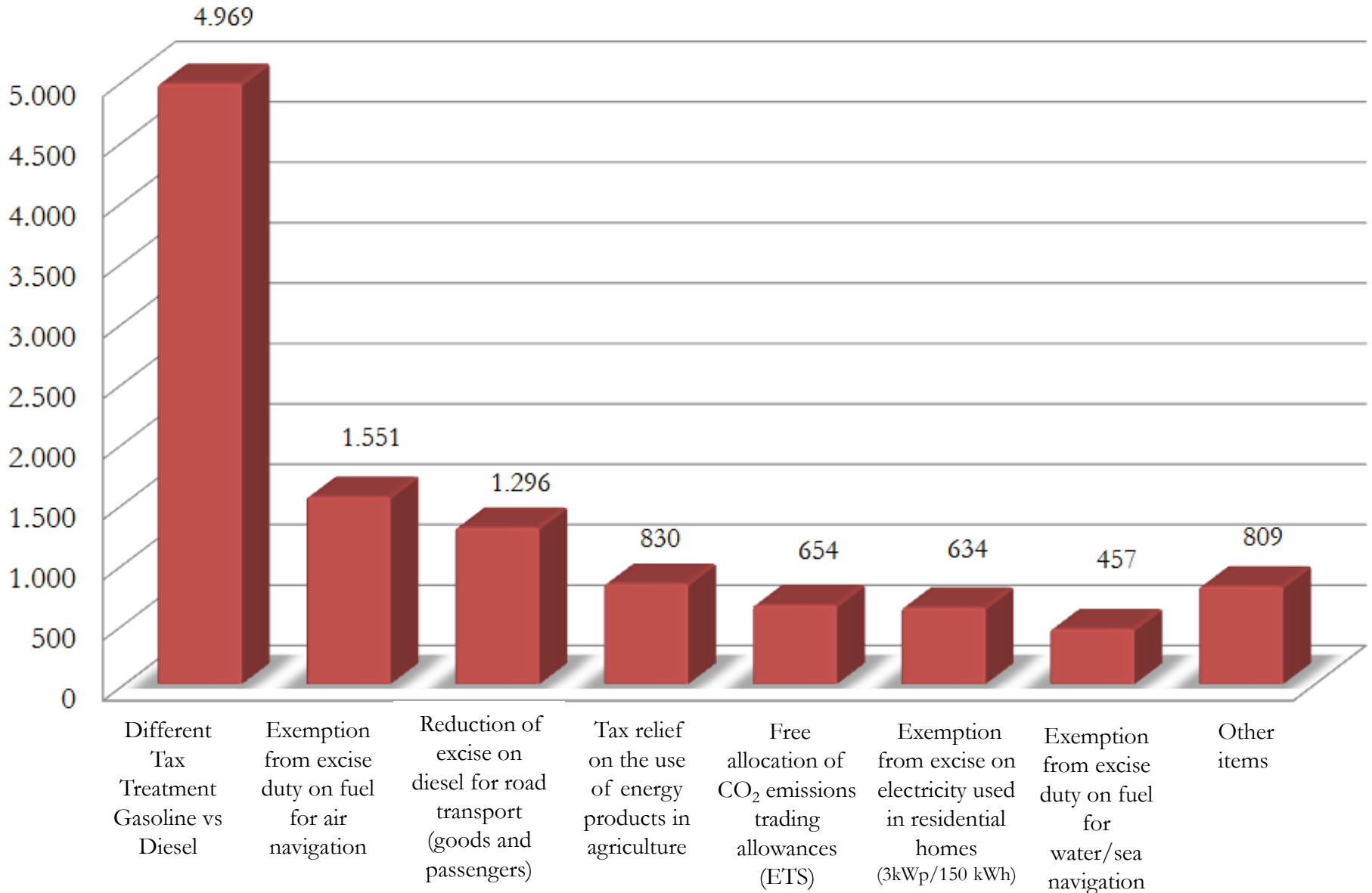
Tax expenditures = ca. € 11.2 bn (97%)

Direct Subsidies = ca. € 310 ml (3%)

VAT:

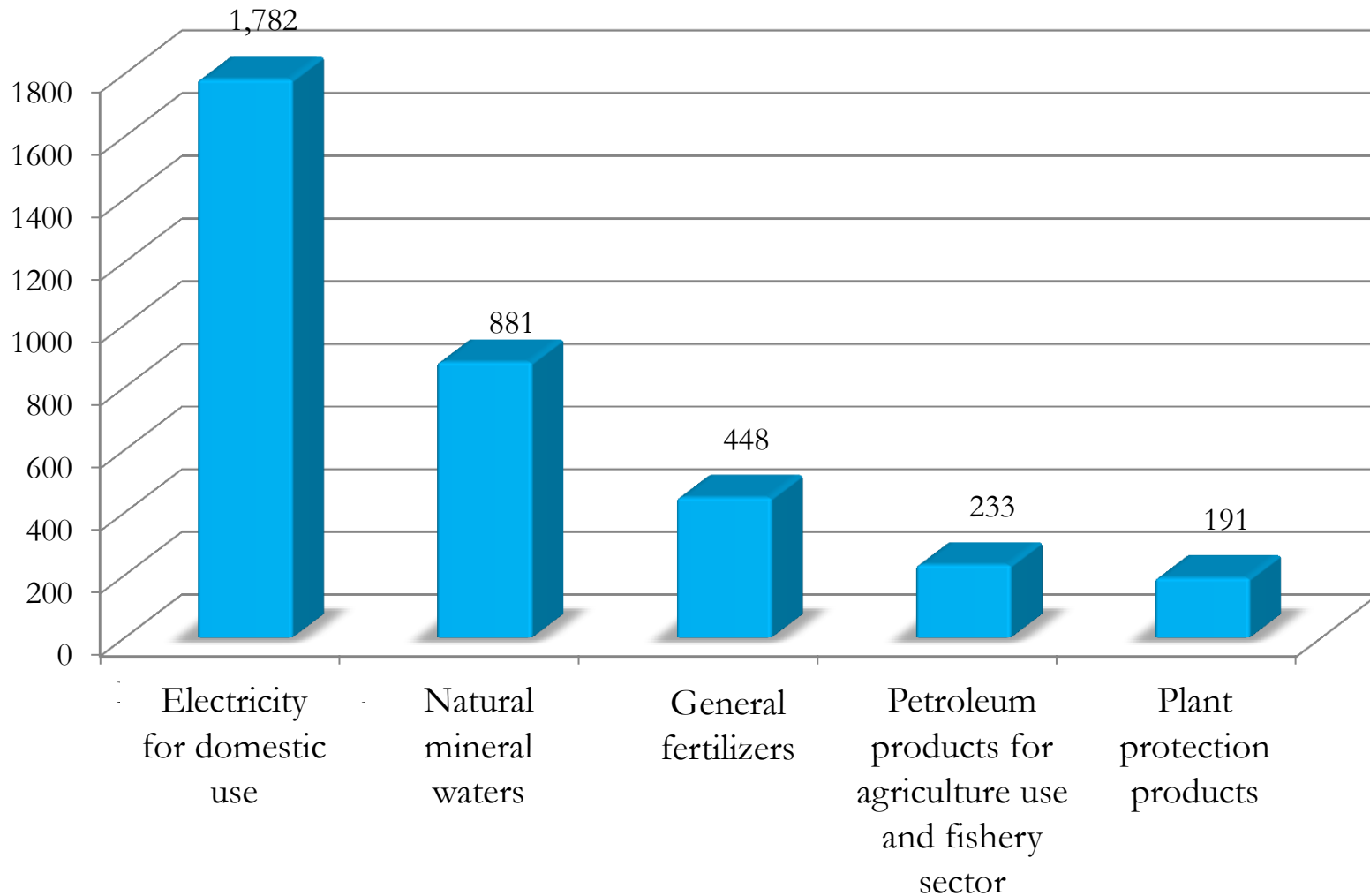
Tax expenditures = ca. € 3.5 bn

EHS Energy (€ ml)

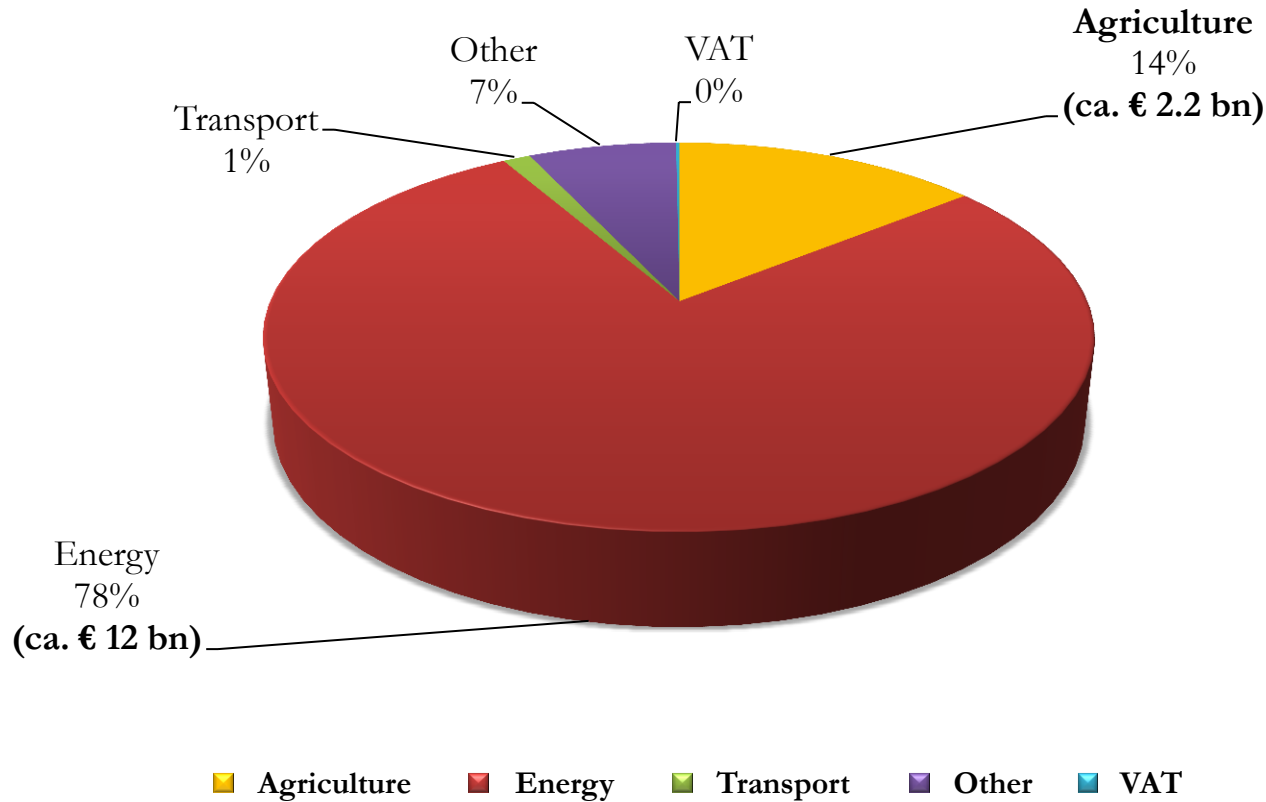


- **VAT:** Tax Expenditures = ca. € 3.5 bn (100%)

EHS VAT (€ ml)



EFS per Categories (€)



Energy:

Direct Subsidies = ca. € 12 bn (99%)

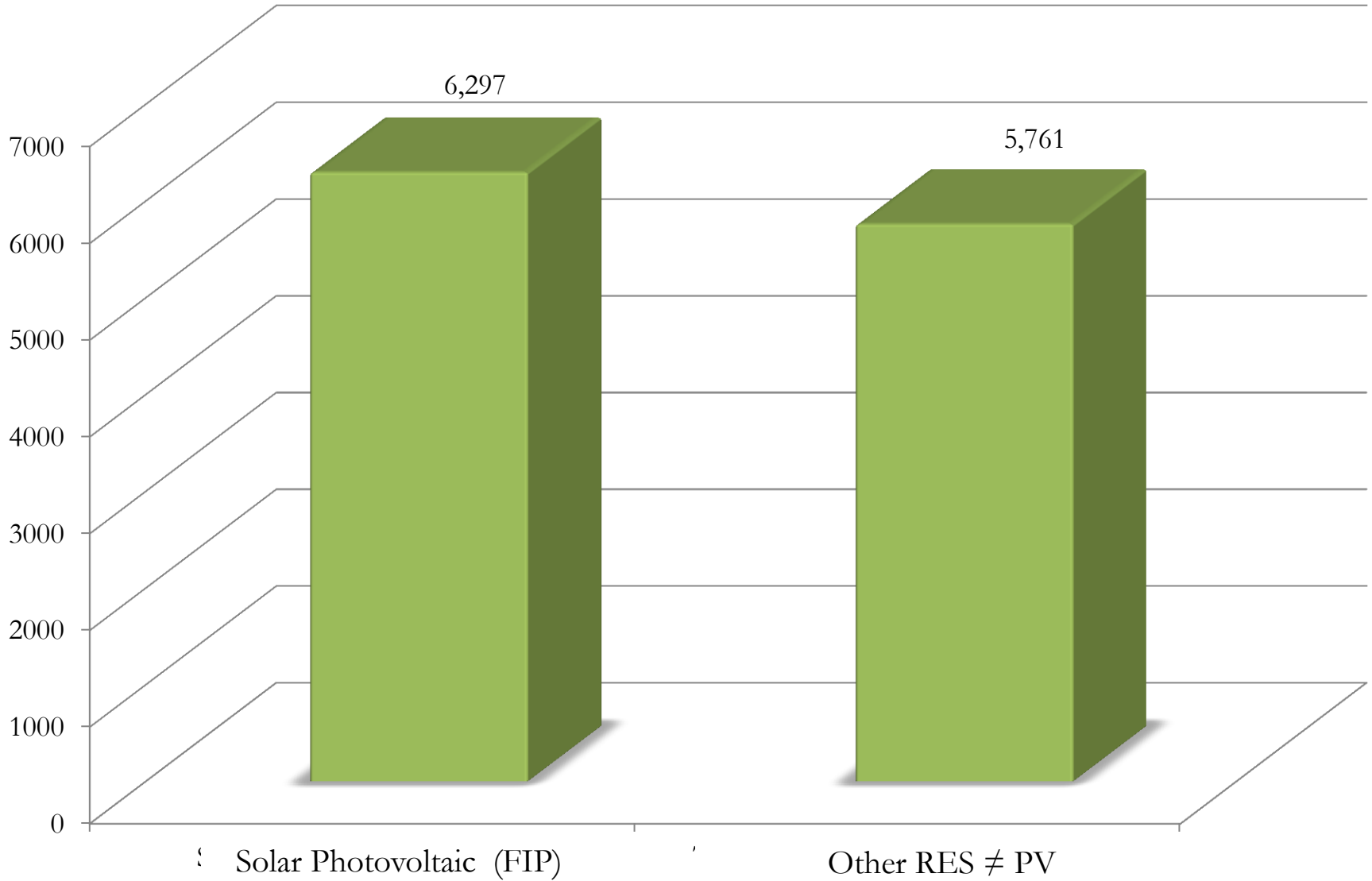
Tax Expenditures = ca. € 86 bn (1%)

Agriculture:

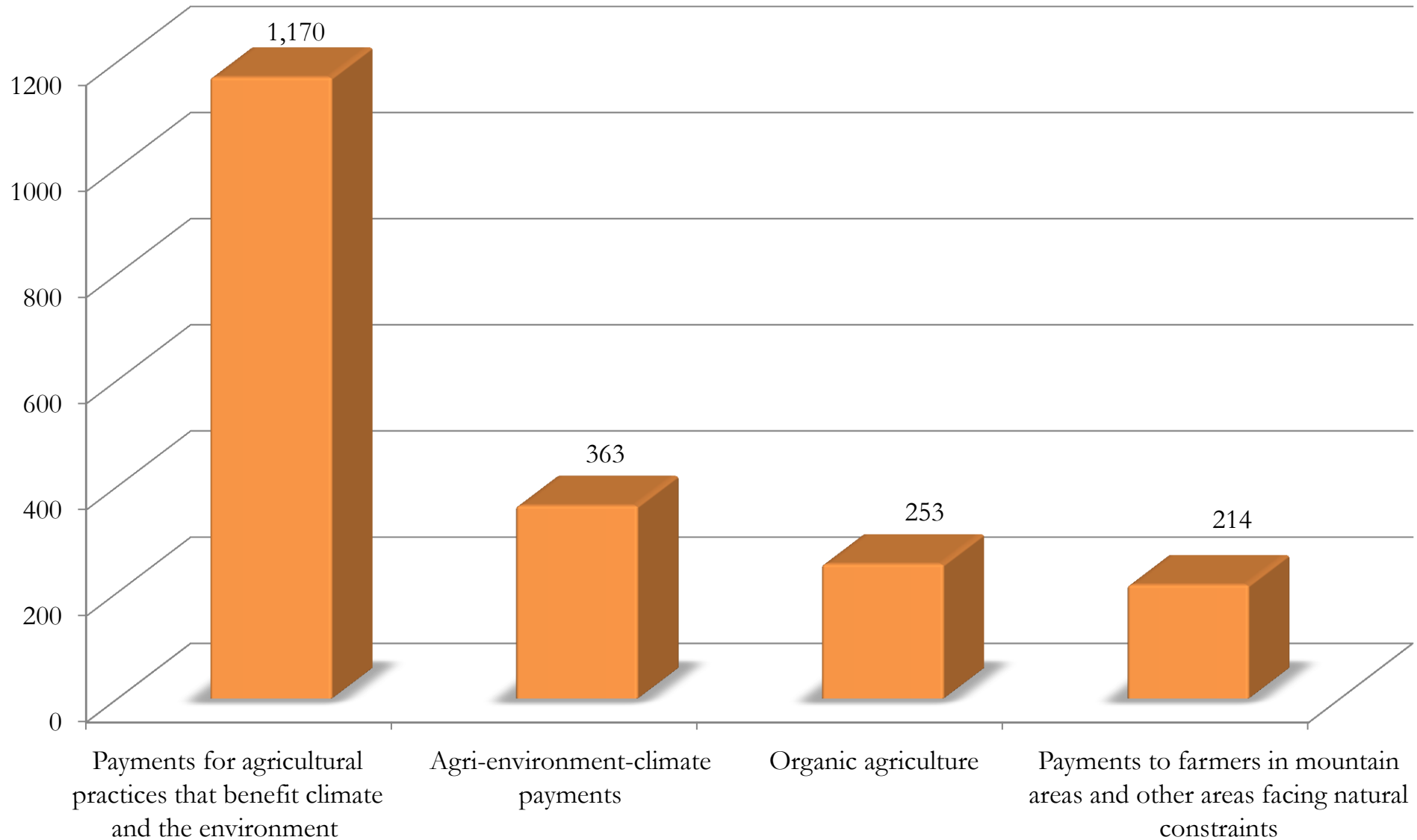
Direct Subsidies = ca. € 2.2 bn (99.8%)

Tax expenditures = ca. € 4 mn (0.2%)

EFS Energy (€ ml)



EFS Agriculture (€ ml)



Main results of the Catalogue/2

| Subsidies Categories | EHS | EFS | ENS | Uncertain | Total (€ mn.) | Total (%) |
|-------------------------|-----------------|-----------------|----------------|----------------|-------------------|--------------|
| Agriculture | 153.68 | 2231.39 | | 4067.79 | 6452.86 | 15.68 |
| Energy | 11550.00 | 12144.65 | | | 23694.65 | 57.58 |
| Transport | 202.20 | 200.00 | | 65.40 | 467.60 | 1.14 |
| Other | 700.10 | 1078.52 | 3538.00 | 1633.60 | 6950.22 | 16.89 |
| VAT | 3560.98 | 24.62 | | | 3585.61 | 8.71 |
| Total (€ mn) | 16166.97 | 15679.18 | 3538.00 | 5766.79 | 41150.94 | 100% |
| Total (%) | 39.28% | 38.10% | 8.60% | 14.01% | 100% | |

We identified and analysed ca. € 41 billion of Subsidies:
Tax Expenditures (ca. € 22 billion) and Direct Subsidies (ca. € 19 billion).

EHSs: 16.2€bn - EFSs 15.7€bn

Tax Expenditures : 71% are EHS - Direct Subsidies 76% are EFS

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The case of the different fiscal treatment of the excise on gasoline / diesel

- 2015 gasoline excise € 728.4 per 1000 liters
- 2015 diesel excise € 617.4 per 1000 liters
- The difference in excise tax relative to diesel fuel is not justified by the scientific literature and contrasts with the European legislation on emission standards.

Environmental concerns

- The Community legislation on emissions (euro standard limits) allows higher levels of emissions for diesel vehicles. Differential is decreasing, but the existing fleet is still with high differential.

| | NO _x (mg/km) | | PM (mg/km) | |
|----------|-------------------------|--------|------------|--------|
| | Gasoline | Diesel | Gasoline | Diesel |
| Euro 0 | - | - | - | - |
| Euro I | - | - | - | 140 |
| Euro II | - | - | - | 80 |
| Euro III | 150 | 500 | - | 50 |
| Euro IV | 80 | 250 | - | 25 |
| Euro V | 60 | 180 | 5 | 5 |
| Euro VI | 60 | 80 | 5 | 5 |

The computation of the difference in excise tax

| | Excise 2015 | Excise 2015 (Energy content) |
|--------|------------------|------------------------------|
| | Euro/1000 liters | Euro/GJ |
| Petrol | 728.4 | 22.35 |
| Diesel | 617.4 | 17.30 |

- The raw comparison considering the average excise in 2015 displays a 15% difference.
- A more correct approach, that is based on the energy content of fuels (see e.g. the 2011 Proposal for the Directive on energy taxation), displays a higher difference (22%).

The potential additional revenue due to excise alignment

| Fuel | Consumption 2015 (tons) | Revenue for current rates (million EUR) | Consumption 2015 (GJ) | Potential revenue with diesel fuel tax rate equal to the gasoline (22,35 EUR / GJ) (million EUR) | Potential additional revenue (million EUR) |
|---------------|-------------------------|---|-----------------------|--|--|
| Petrol | 7,822,000 | 7,692 | 344,168,000 | 7,692 | - |
| Diesel | 23,249,000 | 17,009 | 983,432,700 | 21,978 | 4,969 |
| Totale | 31,071,000 | 24,701 | 1,327,600,700 | 29,670 | 4,969 |

- The total revenue from excise on diesel fuel, without accounting for the tax expenditures on diesel recognized to road transport, would rise from about € 17 to € 22 billion in 2015, with a foregone revenue around € 5 billion.

How would the alignment look like

- In the current regulatory framework, the relative excise tax of diesel fuel should be € 757 euro per 1000 liters (+ € 139.6 per 1000 liters).
- Assumptions: we assume constant consumption with no change in consumers' behavior.
- Including VAT, we would have an additional € 1 billion foregone revenue, totaling € 6 billion.

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Catalogue - The policy context

The activities included in the Catalogue mainly consist of an ex post environmental assessment of national subsidy schemes. The Catalogue primarily involves the following public policies (also other greening processes are influencing such policies):

- **Public expenditure policies of central public bodies** (green public procurement, ex ante assessment of public works, **direct subsidies**, etc.)
- **Fiscal policy** (greening the taxation system):
 - ✓ Shifting taxation from job to environment;
 - ✓ Interventions on the existing rates of environmental taxes (standard excise duties) to fully cover the environmental external costs;
 - ✓ **Tax expenditures: interventions on exemptions and tax breaks to fill the gap against the tax «ordinary rate» (excise duties, VAT, income taxes, etc.)**

Specific Recommendations:

Energy excise duties and ETS

- ✓ Removal of exemptions on electricity excise duty that currently benefit specific consumption sectors (E.SF.2-4), except for self-consumption of energy produced from renewable sources (E.SF.27-28).
- ✓ Removal of tax breaks on natural gas, i.e. those benefiting major gas consumers for industrial use (E.SF.22).
- ✓ Removal of excise duty exemption for maritime transport (E.SF.7) and aviation (E.SF.8) through a gradual approach (high tax break to be gradually reduced) starting from domestic tariff (cabotage, domestic flights). *International agreements to be reformed – domestic vs international traffic.*
- ✓ Reduction of sectoral discounts provided to road and off-road transport fuels (freight transport, agriculture, taxi, army).
- ✓ ETS: removal of free allocation of tradable permits (E.SF.26) and of subsidies provided to industry to prevent relocation of industrial plants (carbon leakage) financed through the auctioning process (E.SD.1).

Specific Recommendations:

Rebates on VAT and income taxes

- ✓ **Re-alignment to the VAT «reference level» (22%) for goods presently benefiting of VAT breaks (4% or 10%) despite their negative environmental impact:**
 - **Fertilizers (IVA.1)**
 - **Water and mineral water (IVA.5)**
 - **Electricity for domestic, agriculture and manufacturing use (IVA.6)**
 - **Gas** used by agriculture companies, extraction and manufacturing companies and gas provided to distribution network (IVA.7)
 - **Methane gas for domestic use, consumed in small quantities (IVA.12)**
 - **Mineral oil used in specific energy transformations, including electricity production (IVA.8)**
 - **Oil products used in agriculture and fishing in inland waters (IVA.9)**
 - **Pesticides (IVA.10)**

- ✓ **Reform of personal income tax rebates (IRPEF) linked to the real estate purchase or lease of a real estate (A.SF.16, 18, 19):**

The existing tax rebates can incentivate land consumption and impacts on biodiversity: the tax rebates should be limited to existing buildings or to urban regeneration areas (no rebates for new buildings in new urban areas).

General recommendations

How to build upon the Catalogue

- ✓ **The Catalogue is an informative instrument: it should be properly disclosed and diffused**
- ✓ **Institutional monitoring of the external costs of subsidized activities must be strengthened**
- ✓ **The introduction of specific environmental requirements/conditionalities can improve subsidy management (from «uncertain» or «neutral» subsidies to «friendly» subsidies).**
- ✓ **Towards an ex ante environmental compatibility assessment of subsidies?**

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The next Catalogue

- **The Catalogue must be conceived as a work in progress:**
 - continuous update of the subsidy schemes;
 - gradual extension of the scope of analysis to new forms of subsidies to be classified as EHS or EFS and quantified;
 - improvements in data collection;
 - stable cooperation with the Expert Commission on tax erosion, with the Ministry of Economy and Finance and with other central public bodies (responsible for sectoral public expenditures).

Today's Catalogue

- The list of subsidies considered in the first edition of the Catalogue includes:

- *Tax expenditures*

(Source: Annex to the Budget Law):

- Tax rebates on «environmental taxes»;
- Tax rebates, deductions and tax credits on personal income (IRPEF) and on corporate entities (IRES, IRAP);
- Reduced VAT rates.

- *Direct subsidies*

(Sources: Crea, GSE, Budget Law):

- subsidies to agriculture;
- main energy subsidies;
- more recent subsidies in 2016 Budget Law and Law n. 221 of 28 December 2015

What is still missing in the Catalogue ... (1)

- **The main expenditure categories not included in this first edition:**
 1. EU Structural Funds (Cohesion Policy) linked to National Operational Programmes (PON) and Regional Operational Programmes (POR);
 2. Direct subsidies managed by the Ministry for Economic Development (i.e. energy, industry and trade), included those managed through regional authorities;
 3. Direct subsidies autonomously provided by regional authorities.

What is still missing in the Catalogue ... (2)

- **Other subsidies that are not considered in this edition ...**
 - The new tax expenditure schemes identified by the Commission on tax erosion (so-called Marè Commission)
 - Implicit subsidies that could be assessed through external costs methods, for example
 - ✓ tax breaks on royalties;
 - ✓ concession fees on natural resources that do not cover the external costs (related to the unsustainable use of natural resources).

What is still missing in the Catalogue ... (3)

→ Other subsidies not considered in this edition...

- Subsidies provided through fees on public services (electricity, natural gas, drinking water), due to a debate on their inclusion and quantification;
- Breaks on «general system costs» (electricity bill subsidies for renewables and energy efficiency) provided to companies with high energy consumption levels (as defined by article 2 of Decree of 5th April 2013);
- Crossed subsidies for the coverage of «general system costs» in electricity bill, that are presently included in the tariff systems for domestic and non domestic consumption categories.