The Current Status of ELV Recycling in KOREA

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1. Produce and Treatment · Recycling of ELV in Korea

- Domestic Vehicles: 20,989,885 Cars
- ELV: 773,436 Cars

Dismantling
- PUS: 26,961
- DAG: 41,954
- INC: 24,597
- GWA: 17,777
- DAJ: 18,176
- ULS: 13,462
- GGD: 302,936
- SEJ: 4,626
- GWD: 33,733
- CCB: 25,823
- CCND: 37,057
- JLBD: 38,962
- JLND: 37,519
- GSBD: 57,891
- GSND: 76,793
- JEJ: 15,169

Shredding
- PUS: 11
- DAG: 14
- INC: 8
- GWA: 9
- DAJ: 6
- ULS: 8
- GGD: 123
- SEJ: 0
- GWD: 36
- CCB: 34
- CCND: 44
- JLBD: 48
- JLND: 54
- GSBD: 62
- GSND: 51
- JEJ: 14

ASR
- PUS: 1
- INC: 1
- ULS: 4
- GGD: 3
- CCB: 1
- CCND: 2
- JLBD: 2
- GGD: 1
- GSBD: 1

Waste Gas
- PUS: 1
- INC: 1
- GGD: 1
- GSBD: 1

Vehicles: 2015.12
Facilities: 2016.04
2. Amount of ELV

※ Amount of ELV producing 1987~2015
3. Amount of ELV Dismantlers

※ Number of ELV dismantling company and amount of ELV processed per company 1989~2015

![Graph showing ELV recycled by a company per year and number of dismantling ELV company from 1989 to 2015](image)

- **Mandatory Vehicles**: 737,221 cars (Taken over)
  - Hyundai: 48%
  - Kia: 25%
  - GM Korea: 16%
  - Ssangyong: 6%
  - ETC.: 3%
  - Renault-Samsung: 2%

- **Total Taken Vehicles**: 777,439 cars
  - Mandatory: 95%
  - Exemption: 5%

- **Total Taken Masses**: 1,145,530,646 kg
  - Mandatory: 86%
  - Exemption: 14%

- **Vehicles and Mass**:
  - Light: 6.8% (Vehicles), 3.6% (Mass)
  - Small: 12.9% (Vehicles), 8.8% (Mass)
  - Large: 43.4% (Vehicles), 38.2% (Mass)
  - Executive: 13.4% (Vehicles), 15.1% (Mass)
  - Minivan: 5.7% (Vehicles), 5.9% (Mass)
  - Light-pickup: 0.5% (Vehicles), 0.3% (Mass)
  - Small-pickup: 12.2% (Vehicles), 13.7% (Mass)
  - Exemption: 5.2% (Vehicles), 14.4% (Mass)
5. Current Recycling Status of ELV in Korea (by Material)

1st Step (Dismantling)
- 47,614 tons (5.6%) 9 kinds of Mandatory Dismantling Parts (Battery, etc.)
- 56,652 tons (6.7%) Glass, Rubber, Plastics, etc.
- 77,815 tons (9.2%) Reused Parts
- 286,199 tons (33.9%) High Grade Steel Scrap
- 468,280 tons (55.5%) Recycled

2nd Step (Shredder)
- 251,131 tons (29.8%) Recycled

3rd Step (ASR Treatment)
- 30,881 tons (3.7%) Recycled

4th Step (Gas Treatment)
- 11 tons (0.0%) Recycled

Total Produced: 843,298 tons (100%)

Recycled: 468,280 tons (55.5%)
Recycled: 251,131 tons (29.8%)
Recycled: 30,881 tons (3.7%)
Recycled: 11 tons (0.0%)

Recycled rate: 89.0%

- 348,376 tons (41.3%) Stripped Vehicle
- 2,922 tons (0.3%) Non-Ferrous Metal
- 248,209 tons (29.4%) Ferrous Metal
- 30,704 tons (3.6%) Energy Recovered
- 177 tons (0.0%) Metal/etc. Recovered
- 43,642 tons (5.2%) ASR
- 11 tons (0.0%) Treatment of HFCs or etc.
6. Current Supplying Status of ELV in Korea (by Material)

Pre-Treatment

<1st Step – Dismantling>

Stripped Vehicle
- Shredding company

<2nd Step – Shredder>

ASR
- ASR Recycling Company

<3rd Step – ASR Treatment>

<4th Step – Gas Treatment>

Reused Parts
- Private, Garage, Seller, Export

Used cars
- Export, Overseas buyer

Fuel
- Company vehicle itself

Reuse

Material Recycling

Battery
- Recycling Company
- Pb, Sulfate

Bumper/Fuel Case
- Recycling Company
- PP, PE

Catalyst
- Recycling Company
- Pt

Tire
- Recycling Company
- Rubber

Non-valuable
- Recycling Company
- Glass, etc.

HG Steel Scrap
- Steel Company

Energy Recovering

Recovered Refrigerant
- Recover Process itself

Heat Energy
- Smelting Company
- Steel/Smelt

Disposal

Liquid waste
- Waste Disposal Company
- Oils, Antifreeze

Airbag
- Waste Disposal Company
- Nylon

Demand

(Recycling Circulation Structure)

ASR
- General Incineration Company

Non-Ferrous Residue
- Smelting Company

Non-Ferrous scrap
- Smelting Company
- Cu, Zn

Destroy
- Emission after destroying

Stripped Vehicle
- Shredding company

ASR
- ASR Recycling Company

Lost Vehicle
- Stripping Company

HG Steel Scrap
- Steel Company

Non-Ferrous Residue
- Smelting Company

Heat Energy
- Burn itself/Steam Produce

Recovering

Demand

(Recycling Circulation Structure)
7. Main Problems of ELV Recycling Market in Korea

**Dismantling Company Managing Condition**
- Accelerating management difficulty of ELV Recycling Company by excessive competition
  - Almost of all ELV recycling company told about difficulty of payback, or being busy just keep the current status are increasing
  - There are many cases that cost problem connects to employee outflow furthermore business closure is increasing
  - By increase of inappropriate treatment and management, thought of consumer worsen and negative influence could exist

**Recycling Industry Vitalization**
- Increasing of inter-defamation and distrust in the same industry
  - Cost collusion happens when competition accelerating by some company that followed by market turmoil
  - Small-size company complaint explode and polarization deepens

- Maintaining business is prior to advancing and developing technology
  - Overall industry stasis by excessive buying cost induced various stress

**Appropriate ELV Processing and Treatment Impossible**
- Cost problem regenerates to waste at next steps
  - Consequence of cost pressure that cannot process appropriately, possibility of inappropriate material heading to shredding company increases
  - Shredding step burdens more when cost pressure increases

- Bad influence to securing supply by cost burden
  - Stable securing supply of 3rd, 4th Step that required treatment cost is being difficult

**Illegal ELV company increases**
- Wicked dealer that brings market turmoil, or illegal dismantler that do not have appropriate facilities increases in the collecting process of ELV
- Inappropriate treatment probability increases about case such as ASR or waste gas that needed large cost
- Soil pollution can occur when stacked vehicles increasing

**Recycling Link after Dismantling**

**Prevention of Environmental Pollution and Protection of Environment**
8. Needs for Cooperation for 95% Recycling Target in Korea

- Manufacturer · Importer
- Step-1 (Dismantling)
  - Is it proper?
  - Legal Treat?
  - Refrigerant
  - Discharge/Illegal Treat
  - Impurities Mix
  - ASR
  - Additional Expenses
  - More Recycling
  - Recycling Target 95% Possible
  - Needs More Assist
  - Recycling Target 95% Impossible
- Step-2 (Shredder)
  - Insufficient ASR
  - More General Waste
  - More Other Source
- Step-3 (ASR Treatment)
  - Insufficient Automotive Refrigerant
- Step-4 (Gas Treatment)
  - More Recycling
  - Vicious Cycle
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- Vicious Cycle
## 9. Main Issues related to ELV Recycling in Korea

### Cost burden subject and level
- Level of cost burden from producer or importer
- Cost burden ratio between producer/importer
- Level of cost burden from purchaser of new vehicle or last owner of ELV
- Level of cost burden from ELV recycler
- Penalty or restriction to manufacturer or importer who cannot achieve recycling rate target set by ELV directive
- Plans about cost burden for the increase of recycling cost to 95% target
- Level of cost if ELV recycler pays collecting fee to the last owner

### System managing form
- Managing strategy of cooperative unions (or related associations) operating ELV recycling system
- Managing strategy of when single or plural form of cooperative union exists
- Responsibilities and duties of cooperative unions
- Allowance strategy of specific manufacturers or importers operate their own agencies that consist of collaborative recycling companies
- Both allowance strategy for cooperative union and agencies

### ATF required condition
- Requirements for the treatment facility of dismantling (Ex, obligations of taking over from ELV recycling companies, and treatment cost burden etc.)
- Requirements for the treatment facility of shredding (Ex, obligations of taking over from ELV recycling companies, and treatment cost burden etc.)
- Requirements for the treatment facility of ASR (Ex, obligations of taking over from ELV recycling companies, and treatment cost burden etc.)
- Requirements for the treatment facility of refrigerant from air conditioners in the vehicle (Ex, obligations of taking over from ELV recycling companies, and treatment cost burden etc.)

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**Stable and Efficient Management of KOREA ELV Recycling System**
Thank You

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