Scrappage policy for automotive sector is here!

Mobility Roadmap in Circular Economy
1. Merits of scrappage policy - sustaining the environment
   A. Reduction in pollution - less emission
   B. Reduction fuel import - less extraction
   C. Recycling of raw materials - less mining

2. Practices in the rest of the world
   A. Multiple country scrappage policies
   B. GO Green and portfolio balancing

3. End of Life vehicle recycling global framework
   A. Global framework
   B. Way forward for Indian auto ecosystem

4. How EY can help
   A. Recyclers and OEMs
   B. Companies for approaching carbon neutrality
Section 1
Merits of scrappage policy - sustaining the environment
With the emergence of the new decade, automotive original equipment manufacturers (OEMs) enter an era of uncertainty as the industry is set to face several interconnected changes. This includes new dimensions of mobility (Connected, Autonomous, Shared & xEV) and new forms of ownership, combined with an increased environmental focus. Above all this, the COVID-19 pandemic has made the industry realize the vulnerability associated with the current value chain structure.

As car ownership continues to increase at a global scale, an important aspect in the strive for aggregated emission reduction is to increase the automotive industry’s circularity, including new processes regarding end-of-life vehicles (ELVs). In recent years, environmental issues and sustainability have become one of the main items of debate in the automotive industries, where focus is on minimal use of non-renewable resources and minimal emission from pollutants. Scrappage policy can give a positive push to start a new and nascent automotive ecosystem in addition to the obvious benefits of reduction in pollution, fuel import bill, raw materials availability, recycle or re-use parts and impetus of replacement demand.

The increasing use of lightweight materials and multi-material concepts in vehicle design has created certain challenges for which we are dependent on import policy. In many ways this scrappage policy may act as an important catalyst for self-sustenance.

With the introduction of this policy, the Government of India has provided a platform for new types of job creation. The industry will witness a need to focus on skilling. The Indian automotive industry can thereby use the country’s exhaustive and rich human capital and focus on right skilling.
Rapid introduction of new materials and electronics, all potentially impact a vehicle's efficacy for achieving greater levels of sustainability. Today, we are standing on the crest of a new business model extending the new auto ecosystem where new players in the traditional automotive ecosystem can be involved in an organized manner. Scrappage policy will provide novel opportunities for new and existing players where go-to-market will be a differentiator.

This scrappage policy provides yet another opportunity for transition into a circular economy whereby the value embedded in ELVs' components and materials is recaptured through reuse, recycling and recovery. The best amongst them was the treatment route being selected so as to maximize the preservation of material quality. This factor will make automotive OEMs and their suppliers rethink the ways that vehicles and their materials are designed, constructed, used, and handled at end of life.

Internationally, 85-95% of the vehicle is recovered with the vehicle designs being well suited for easy dismantling and disposal. Europe and Japan mandated 90%-95% of vehicle recovery from 2015. India can also can take learnings from the other nations and choose and adopt a path toward recycling or remanufacturing the components, that indeed seems to be the need of the hour.

To summarize, the time is just right for the introduction of the scrappage policy. It brings a lot of positive factors, beginning with reduction in emissions to acting as a catalyst for vehicle sales increase. Moreover, it will result in the expansion of the automotive ecosystem. (Fitness center, new aspects of supply chain, Scrapping Center's Automation etc.) thereby saving on raw imported material to new business models. Thus, the scrappage policy will certainly increase the speed of growth of the automotive Industry.
Scrappage policy for automotive sector is here!

**Problem size**

- **2015**
  - 8.7 Million
  - 8.7 million obsolete vehicles* - 2015

- **2025**
  - 22 Million
  - 22 million obsolete vehicles* - 2025

- **2030**
  - 28 Million
  - 28 million obsolete vehicles* - 2030

*Includes Two Wheeler, Three Wheeler, PV, CV
Merits of scrappage policy – sustaining the environment is an idea whose time is NOW

Air pollution

Air pollution is a challenge being faced globally, and like major countries, India has taken several measures to tackle it. One of the most major and talked about steps in this direction is the implementation of Bharat Stage VI norms, which has reduced emissions from new vehicle fleet by 60-90% (varies among vehicle segments when compared with Bharat Stage (BS) I and BS II). As per the Central Pollution control board study, BS III trucks produce 10 times more NOx and particulate matter (PM) emissions as compared to BS VI vehicles. Similarly, trucks meeting BS II emission norm emit 14-15 times higher PM and NOX compared BS VI trucks.

Trend in particulate matter and nitrogen oxide standards for heavy duty vehicles (India 2000 to BS VI)
**Old vehicles**

This highlights the importance of removing old vehicles, particularly old diesel vehicles, from the fleet to substantially reduce direct exposure emission on roads. This benefit can be maximized if old heavy duty diesel commercial vehicles are taken off from the road. It is extremely difficult to quantify legacy fleet in India, as there is no record of vehicle expiry and scrappage. In 2016, a joint study by Central Pollution Control Board (CPCB) had estimated that about 8.7 million vehicles had reached end-of-life (ELV) status by 2015 (including PV, CV, 2W and 3W). By 2025 the ELoV count would be nearly 22 million, and by 2030 it would be 28 million and this number is bound to grow as consumer needs and aspiration increased.

**Pollution control**

Pollution control, however, is not the only reason why the Indian Government needed to drive scrappage policies. Replacement of old commercial vehicles with those having better performance will result in reduction of oil import bill which is estimated to be INR 9,550 Cr in 2025. Today to fill its demand, India also imports steel scrap, which is a major resource in the production of new materials. India currently suffers from a deficit of scrap material and is thus pushed to import scrap, which is expected to accrue a bill of INR 6,550 crores till 2025.
Import dependency of raw material

Contribution of automobile sector to the national income (GDP) consumption base of raw materials, and import dependency

- Copper (50-60%)
- Lithium (100%)
- Cobalt (100%)
- Aluminium scrap (60%)
- Steel scrap (20-25%)
- Lead (75%)
- Rare earths (100%)

Selected raw materials (vehicle propulsion wise)

- Internal combustion engine vehicles:
  - Steel, copper, aluminium, zinc, nickel, lead, glass, rubber, various plastics/synthetics
- Electric vehicles:
  - Lithium, cobalt, nickel, rare earths, various plastics/synthetics, steel, copper, aluminium

Economic sector

- Automobile sector (inclusive of electric vehicles)
- Share in national income (7.1%)

Import dependency (in percentage)
## Contribution of automobile sector to the national income (GDP) consumption base of raw materials, and import dependency

<table>
<thead>
<tr>
<th>Economic sector</th>
<th>Selected raw materials (vehicle propulsion wise)</th>
<th>Import dependency (in percentage)</th>
</tr>
</thead>
</table>
| Automobile sector (inclusive of electric vehicles) | - Internal combustion engine vehicles:  
  - Steel, copper, aluminium, zinc, nickel, lead, glass, rubber, various plastics/synthetics | - Copper (50-60%)  
  - Lithium (100%)  
  - Cobalt (100%)  
  - Aluminium scrap (60%)  
  - Steel scrap (20-25%)  
  - Lead (75%)  
  - Rare earths (100%) |
| Share in national income (7.1%)         | - Electric vehicles:  
  - Lithium, cobalt, nickel, rare earths, various plastics/synthetics, steel, copper, aluminium          |                                                        |

Scrapage policy for automotive sector is here!
Section 2
Practices in the rest of the world

Scrapage policy for automotive sector is here!
The global car fleet looks different today than it did in 2009 after witnessing rise and decline in diesel engines, a growing market share of SUVs and new growth in the sales of electric vehicles. Reflecting these differences in today’s stimulus packages can accelerate progress towards transport decarbonisation goals. Connecting incentives to fuel efficiency standards sets a clear and ambitious policy direction that supports the transformation of the automotive sector through a larger uptake of hybrid and electric vehicles.

Stimulus measures can boost investment in alternative powertrain manufacturing, charging infrastructure and battery manufacturing as well as in the associated workforce training. These are essential investments for economies to support economic recovery and to succeed in the transition to low-carbon transport while improving long-term local employment prospects. Alignment between stimulus measures and long-term goals for the transport sector (fuel economy, tailpipe CO2 emissions and zero-emission vehicles deployment) can ensure that these goals are actually met.

In spite of these important evolutions in the automotive sector, mobility patterns and the broader economy, past stimulus programmes can still provide useful lessons. In response to the 2008-09 recession, numerous countries launched purchase incentives and vehicle scrappage schemes with varying design features and scope:
Governments are implementing stimulus programmes to support the automotive sector, with an eye to clean transition

<table>
<thead>
<tr>
<th>Program start and duration</th>
<th>Germany</th>
<th>Spain</th>
<th>France</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July 2020-Decem</td>
<td>June-December 2020</td>
<td>June-July 2020</td>
<td>Temporary additional bonus:</td>
</tr>
<tr>
<td></td>
<td>ber 2021</td>
<td></td>
<td></td>
<td>August-December 2020</td>
</tr>
<tr>
<td>Type of vehicle eligible for subsidies</td>
<td>Electric and hybrid vehicles</td>
<td>Vehicles with CO₂ emissions under 120 g/km</td>
<td>Mainly electric and hybrid vehicles; vehicles with internal combustion engines for certain scrappage conditions</td>
<td>Electric and hybrid vehicles, Euro 6 vehicles</td>
</tr>
<tr>
<td>Scrappage requirement (yes/no)</td>
<td>No</td>
<td>Yes (cars older than ten years)</td>
<td>No, but scrapping a vehicle grants modest households an additional bonus of EUR 3 000 (for purchasing a vehicle with an internal combustion engine) to EUR 5 000 (for purchasing an electric vehicle)</td>
<td>No, but scrapping a Euro 0·1·2·3·4 vehicle grants additional bonuses (below)</td>
</tr>
<tr>
<td>Eligibility conditions</td>
<td>List price under EUR 40 000 for electric vehicles and hybrids, List price under EUR 35 000 for other vehicles</td>
<td>Income-based conditions (covering about 75% of population), Scrappage bonuses vary according to CO₂ emissions of replaced and replacement vehicles</td>
<td>List price under EUR 40 000 for Euro 6 vehicles, List price under EUR 50 000 for vehicles emitting less than 60 g/km</td>
<td></td>
</tr>
<tr>
<td>Eligible vehicles</td>
<td>Electric and hybrid vehicles, Vehicles with CO₂ emissions under 120 g/km</td>
<td>Electric and hybrid vehicles</td>
<td>Vehicles with CO₂ emissions under 110 g/km</td>
<td></td>
</tr>
<tr>
<td>Bonus amount per vehicle</td>
<td>•Battery electric or fuel cell vehicle: EUR 7 500-EUR 9 000, •Plug-in hybrid: EUR 5 625-EUR 6 7501</td>
<td>Electric vehicle: EUR 4 000, Hybrids: EUR 2 600, Other: EUR 400-1 000</td>
<td>Electric vehicle: EUR 7 000 (for vehicles under EUR 45 000), Hybrids: EUR 2 000 (for vehicles under EUR 50 000), Additional scrappage bonus for modest households: EUR 3 000 for a vehicle with an internal combustion engine, up to EUR 5 000 for an electric vehicle</td>
<td>Existing Eco bonus (+EUR 1 000-EUR 2 000 with scrappage), Emissions lower than 20 g/km: EUR 4 000, Emissions between 20 g/km and 60 g/km: EUR 1 500, Temporary additional bonus (doubles with scrappage): Emissions lower than 60 g/km: EUR 1 000, Emissions between 60 g/km and 110 g/km (Euro 6): EUR 750</td>
</tr>
</tbody>
</table>
Governments around the world are looking to provide support to their automotive industries in response to the slowdown brought on by the COVID-19 pandemic. Stimulus packages that support decarbonization of the vehicle fleet through increased efficiency and electrification can aid in these economic recovery efforts.

In this context, several governments have been considering the implementation of a new generation of incentives and scrappage programs to boost the local automotive value chain through vehicle sales, while increasing fuel efficiency and reducing GHG (Green House Gas) and air pollution emissions from road transport.

- **Italy** has approved an additional bonus for the purchase of electric vehicles, hybrids and Euro 6 vehicles, coming on top of existing bonuses for the purchase of low-emissions vehicles. While scrapping an existing vehicle is not mandatory, it is incentivized with an additional bonus.

- **Germany** earmarked EUR 8 billion to specifically support sales of electric vehicles: the German support package for the automotive sector does not include subsidies for conventional vehicles (i.e., vehicles with internal combustion engines) but incentives for electric and hybrid cars have been doubled.

- **France** increased subsidies for the purchase of electric vehicles, as well as scrappage bonuses for low- to middle-income households. A new subsidy for the purchase of plug-in hybrids has been introduced. Eligibility for the scrappage bonus is conditional on CO2 emissions of the vehicle to be scrapped, on the list price and on household income.

- **Spain** has approved a scrappage scheme involving more generous bonuses for replacing one’s vehicle with a low-carbon option (electric and hydrogen vehicles) rather than a conventional one, and supplementary bonuses for more vulnerable households and for replacing older vehicles.

Scrappage policy for automotive sector is here!
Developing country ELV policy - China

From 1990 to 2017, the number of vehicles in China increased sharply from 5 million to 310 million, and vehicle emissions became one of the major sources of air pollution. Among the main sources of PM2.5 in Beijing, the contributions from vehicle sources increased from 5.6% (2000) to 31.1% (2012) to 45% (2017).

In July 2009, the Ministry of Finance, together with other nine government departments, announced the “Measures for the administration of Automobile Replacement” document. The document highlighted that car owners could receive cash subsidy if they disposed the yellow-label (below China 1 Emission Standard) vehicles to certified auto-products recycling companies and bought a new vehicle.

There were 17 million vehicles with China 2 (or below) Emission Standard on-road as of end-2018. These vehicles were more than 13 years old when the Emission Standard was upgraded from China 2 to China 3 (on 1 July 2007). The combined number of vehicles on-road with China 2 or below and China 3 Emission Standards reached 60 m units as of end-2018. To stimulate more auto demand, the government could provide cash subsidy and restrict road rights for vehicles with the China 2 or China 3 Emission Standards.

The Zhongshan municipal government in Guangdong province announced it would provide cash subsidies for purchasing China 6 emission standard vehicles - Rmb3,000 per unit for replacement car buyers. While it was scheduled to end in 2020, China has extended its subsidy programme for battery electric vehicles and plug-in hybrid electric vehicles to 2022, in order to support the automotive sector through the COVID-19 crisis. The extension of the timeline of subsidies has been accompanied by a downward revision of their amounts, and by the introduction of a maximum pre-subsidy vehicle price to qualify for subsidies.
Section 3

End of Life vehicle recycling
global framework
What has the world done so far on vehicle scrappage?

<table>
<thead>
<tr>
<th>ELV management system</th>
<th>EU</th>
<th>Japan</th>
<th>Korea</th>
<th>China</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target automobile</td>
<td>M1, N1</td>
<td>All vehicles (including buses, trucks, etc.), with the exception of two-wheeled Vehicles</td>
<td>M1, N1</td>
<td>M1, M2, M3, N1, N2, N3</td>
<td>All vehicle categories</td>
</tr>
<tr>
<td>Recycle target</td>
<td>Until 2006: Recovery: 85 % Recycle: 80 % Until 2015: Recovery: 95 % Recycle: 85 %</td>
<td>Airbag: 85 % ASR: 70 % (from 2015 onwards) 50 % (2010 to 2014) 30 % (2005-2009)</td>
<td>Until 2014: Material + Energy recovery: 85 % (of which energy recovery rate is within 5 %) After 2015: Material + energy recovery: 95 % (of which energy recovery rate is within 10 %)</td>
<td>Possibility of recycling: 2010: about 85 % (material recycling of 80 % or more) 2012: about 90 % (material recycling of 80 % or more) 2017: about 95 % (material recycling of 85 % or more)</td>
<td>No specific goals (95 % of ELVs enter the recycling route, of which 80 % of the materials are recycled)</td>
</tr>
</tbody>
</table>

M1, 4-wheeled vehicles with seating capacity of nine or less, including passenger vehicles; M2, seating capacity of nine or more, vehicle weight under 5,000 kg; M3, vehicle with seating capacity of nine or more, vehicle weight over 5,000 kg; N1, freight vehicle with maximum load capacity under 3,500 kg; N2, maximum load capacity of 3,500 kg or more, freight vehicle weight under 12,000 kg; N3, freight vehicle with maximum load capacity of 12,000 kg or more

Scrapage policy for automotive sector is here!
The recycling flow of ELVs turned out to be almost identical in many countries, regardless of the existence of a legislative management system. The process of ELV recycling starts with dismantling. At this point, components containing hazardous substances such as lead batteries, mechanical oils, and refrigerant gases are collected first, and then recyclables and valuable materials for secondary use, including engines, tires, and bumpers, are collected.

In the case of Japan, the collection of refrigerant gases and air bags is legally mandated. In the US, voluntary collection of components containing mercury, such as switches, is operated during the dismantling stage. China, components collected at the dismantlers are very often re-sold or recycled as secondary products.

Car hulks left after the dismantling process are put into shredders. The shredded materials are separated by air classifier, and ASR (Light) is taken out. Subsequently, irons and non-ferrous metals are separated by magnetic separators or non-ferrous metal collectors. The remnants of these processes are ASR (Heavy).

In the EU, ASR is in many cases landfilled at the final landfill sites. It was a similar situation in Japan prior to the enactment of the Law for the Recycling of End-Of-Life Vehicles. However, after the enforcement of the said Law, which mandates the recycling of ASR, material separation of secondary resources, collection of slags by melting furnaces, and energy recovery have become common.
The end of life vehicle recycling global framework

1. End of life vehicles
2. Dismantling company
   - Removal of parts in good condition
3. Shredder company
   - Press
4. Shredder
5. Recycling company
   - Recycle as materials energy

Depollution
- Fluids and CFC collection
- Airbag neutralization and recycling

Reuse as used parts and recycle plastics and ferrous and non-ferrous metals as well as critical raw materials such as Platinum

Sort into three
- 95% Reusable/Recoverable

Incineration
- Landfill

- Bumper (resin) - interior parts, tool boxes etc.
- Engine, transmission (steel, aluminium) - Engines, AI products
- Catalyst (rare metal) - Catalytic converters

- Power steering
- Hood, trunk, body (steel) - Vehicle parts, general steel products
- Tyres (rubber) - raw materials, alternative fuel for cement factories

- Wheel (steel, aluminium) - Vehicle parts, general steel products
- Wiring harness (copper) - copper products, engines (cast, aluminium reinforcement)
- Window (glass) - High strength, precise tiles, landscape paving

Scrappage policy for automotive sector is here!
Challenges for ELV management and direction of system and technologies

ELV scrappage is set to become an ecosystem in itself, with several challenges that may appear across the value chain which can be solved by implementing systems, technologies and policies. The first biggest challenge would be disseminating correct and complete information about dismantling and hazardous material handling. OEMs need to ensure that proper guidelines for these are established, educated to the stakeholders as well as the common man.

Currently, the scrapping market in India is extremely unorganized. Hence, reliable collection of scrap vehicles and preventing illegal dumping becomes paramount. This risk can be reduced after the advent of organized players in the ecosystem and having a centralized management system for scrap vehicles (similar to VAHAN for vehicle sales). The centralized system would also enable the government to have a view of the true vehicle part of each emission standard across the country, and develop a policy/subsidy framework targeting specific high emissions generating categories to encourage vehicle scrapping.

From the technical aspect, standardized processes for complete vehicle scraping would help bring much clarity. Separation of metallic and non-metallic parts, ferrous and non-ferrous material along with overall thermal management, all the while ensuring that secondary pollution is kept to a minimum, would be a challenge in terms of standardization. The future policies around scrappage in India need to focus on these areas.
Challenges for ELV management and direction of systems and technologies

In the meantime, reusing and recycling of certain vehicle parts can be looked into. The unorganized market in India already has a working ecosystem around recycling/reusing vehicle parts. For example, the foam and fabrics from seat cushions are recycled into soundproofing materials for vehicles, mattresses, furniture foam, etc. The copper and aluminium from radiators can be recycled to gun metal ingots and aluminium products.
## Challenges for ELV management and direction of systems and technologies

### Stage I
**Designing/ manufacturing of Automobile**
- Prevention of hazardous substances
- Sufficient dismantling information
- Promotion in recycling components/ materials
- Restriction of the use of hazardous substances, and the development of alternative materials
- Labelling of components for identification
- Shift to materials that are highly recyclable
- Consideration of environmental impact of increasing electronic components and reducing vehicle weight

### Stage II
**Collection of ELV**
- Reliable collection of scrap cars
- Prevention of illegal dumping
- Prevention of illegal use
- Integration and centralization of the management of scrap cars
- Utilization of the electronic information system
- Clarification of division roles among stakeholders
- Providing the public with information on the automobile recycling system

### Stage III
**Dismantling**
- Promotion of component reuse
- Promotion of component/material recycling
- Proper treatment of hazardous substances
- Maintenance of a safe working environment during dismantling
- Maintenance of a sound dismantling environment
- Prevention of sharp rise in cost
- Development of the market for components for reuse
- Stricter system for collection of hazardous substances and appropriate treatment
- Modernization and automation of dismantling
- Fulfilling related regulations and their stricter enforcement
- Modernization of the dismantling industry and thorough registration System

### Stage IV
**Shredding**
- Keeping treatment capacity
- Avoidance of geographic skewness
- Stabilization of the scrap market and its cooperation with the system

### Stage V
**Post-shredding 1**
- Intensive separation of materials
- Prevention of sharp increase in costs
- Maintenance of separation working environment
- Automation of the separation labour
- Development of separation techniques
- Clarification of parties responsible for the cost of handling and ensuring transparency of information on the treatment

### Stage VI
**Post-shredding 2**
- Promotion of thermal recovery
- Prevention of secondary pollution
- Development of the thermal recovery technology
- Clarification of parties responsible for the cost handling
- Conducting of environment monitoring
The scrappage framework that can work in India

<table>
<thead>
<tr>
<th>Vehicle Part</th>
<th>Recycled</th>
<th>Vehicle Part</th>
<th>Recycled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. W1. Window (glass)</td>
<td>Tiles, powdered and recycles</td>
<td>2. Seat (foam and fibre)</td>
<td>Soundproofing materials for vehicles, mattress, furniture</td>
</tr>
<tr>
<td>3. Body, trunk, hood and door (steel)</td>
<td>Car parts and general steel products.</td>
<td>4. Wire harness (copper)</td>
<td>Copper and engines products (cast aluminium reinforcement)</td>
</tr>
<tr>
<td>5. Bumper (resin)</td>
<td>Bumper, interior parts, toolbox etc.</td>
<td>6. Radiators (copper and aluminium)</td>
<td>Gun metal ingots and aluminium products</td>
</tr>
<tr>
<td>7. Coolant, engine and gear oil (oil)</td>
<td>Alternative fuel for boilers and incinerators</td>
<td>8. Engine, transmission, suspension and wheel (steel and aluminium)</td>
<td>General steel and aluminium products</td>
</tr>
<tr>
<td>9. Catalytic converter (rare metals)</td>
<td>Recycle precious metal and reuse</td>
<td>10. Tyre (rubber)</td>
<td>Raw material (road material) alternative fuel cement manufacture</td>
</tr>
</tbody>
</table>

**Diagram:**
- **Dismantling**
- **Shredding**
- **ASR Treatment**
- **End users**
- **Used vehicles, retailers, repairers**
- **Export as used vehicles**
- **Reusables (e.g., engines, body parts, electric parts)**
- **Recyclables (e.g., engines, catalysts, non-ferrous metals, tires)**
- **Recyclables (ferrous and non-ferrous metals)**
- **Landfill**
- **Recycling and energy recovery**

**Scrappage policy for automotive sector is here!**
EY Point of View:
leverage digital future best practices for vehicle scrappage

1. As a best practice, OEM and suppliers can evaluate affixing digital technology on parts

2. Using power of augmented reality, fix a QR code for dismantling instruction on parts like Dashboard, Engine, seats, HVAC system etc
Automobile manufacturers, being an important stakeholder, should design vehicles keeping in mind the recyclability of the vehicle at the end of life.

Manufacturers should undertake responsibility to make adequate provisions relating to the classification, packaging, labelling and colour scheme for dangerous substances.

Vehicle manufacturers should also shoulder responsibilities to use an increased quantity of recycled material in vehicles and other products.

Vehicle manufacturers as a practice should provide dismantling information for each type of new vehicle within six months of the launch and should assist / guide the recycling centres to expand the technological knowhow for segregation and recycling.

OEMs and/or its dealers can facilitate the collection of old vehicles/ELVs/recyclable spare parts of old automobiles either through its take back schemes through set up of scrapping center of its own or through tie ups with such facilities, thereby acting as an aggregator for the collection of vehicles.
The legitimate owner must hand over for scrapping vehicles that do not meet the fitness criterion for the vehicles.

The owner must ensure that s/he has relevant documents/papers suggesting s/he is the owner of the vehicle being considered as ELV.

The owner, should take the responsibility of handing over the end-of-life vehicles only to authorized collection cum dismantling centres authorized by the authorizing agencies or its appointed agencies.

Role of ELV owners

Stakeholder responsibilities
Section 4

How EY can help

Scrappage policy for automotive sector is here!
How EY can help recyclers and OEMs?

- Process flow
- OEM integration
- Value pools
- Network design

- Government of India Policy
- Trade body Representation
- Incentives Qualifications

- Scrappage Industry player

- Go to market
- Sourcing
- ASTERISK - SMART SCM

- Organization design
- Human Capital
- Skilling avenues

Scrappage policy for automotive sector is here!
# How EY can help approach carbon neutrality

## 1. Carbon Footprint Calculation
- Selection of emission factors, calorific values and other factors related to calculation of GHG emissions (Scope 1, 2 and 3)
- Calculation of the GHG emissions as per WBCSD WRI GHG Protocol

## 2. Science Based Targets
- Project the carbon emissions based on baseline emission profile and growth plans
- Selection of appropriate approach to set Science Based Target to determine Scope 1, 2 and 3 targets;
- Develop scenarios for GHG intensity reduction, including baseline projections and alignment with Science Based Targets.

## 3. Evaluation of Decarbonization options
- Identify all the possible options for de-carbonization
- Assess and prioritize the de-carbonization approaches identified by conducting cost-benefit analysis and ease of implementation

## 4. Evaluation of offsetting options
- Analyze existing and potential initiatives with potential for carbon sequestration/ emission reduction
- Calculate carbon sequestration/ emission reduction from identified projects
- Estimate total carbon offsets to achieve carbon neutrality
- Assess various options for procurement of carbon offsets

## 5. Carbon Neutrality Roadmap
- Develop a strategic roadmap for GHG intensity reduction
- Develop a strategic roadmap for GHG offsets
- Development of carbon neutrality roadmap

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*Scrappage policy for automotive sector is here!*
Scrappage policy for automotive sector is here!

Central Pollution Control Board (CPCB), GIZ, a German development agency, and Chintan (NGO)

ARA1 Emission norms, Central Pollution Control Board (CPCB). Guidelines for environmentally sound Management of End-of-life vehicles

Guidelines for environmentally sound Management of End-of-life vehicles, Ministry of Environment Forests and Climate Change

Economic Survey 2018-19, Volume II, Chapter sustainable Development & Climate change

International Emery Agency

An international comparative study of end-of-life vehicle (ELV) recycling systems

https://www.toyota-europe.com/world-of-toyota/feel/environment/better-earth/recycle

Journal of Material Cycles and Waste Management; End of life vehicles recovery: Process description, its impact and direction of research
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2W</td>
<td>Two-Wheeler</td>
</tr>
<tr>
<td>3W</td>
<td>Three-Wheeler</td>
</tr>
<tr>
<td>4W</td>
<td>Four-Wheeler</td>
</tr>
<tr>
<td>PV</td>
<td>Passenger Vehicle</td>
</tr>
<tr>
<td>CV</td>
<td>Commercial Vehicle</td>
</tr>
<tr>
<td>ASR</td>
<td>Automobile Shredder Residue</td>
</tr>
<tr>
<td>CPCB</td>
<td>Central Pollution Control Board</td>
</tr>
<tr>
<td>EL</td>
<td>Electric Vehicle</td>
</tr>
<tr>
<td>ELV</td>
<td>End of Life Vehicles</td>
</tr>
<tr>
<td>ICE</td>
<td>Internal Combustion Engine</td>
</tr>
<tr>
<td>GoI</td>
<td>Government of India</td>
</tr>
<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
</tr>
</tbody>
</table>
Scrapage policy for automotive sector is here!

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<tbody>
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