



Scheme Options

for

Japanese Emissions trading Scheme Based on Cap and Trade System

September, 2010

Ministry of the Environment, Japan

Presentation of Scheme Options

- Domestic Emissions Trading Subcommittee has deliberated on individual issues in designing an emissions trading scheme based on cap and trade to identify the desirable direction by presenting conceivable options in light of hearings with parties concerned as well as precedents in Japan and abroad, while clarifying the characteristics of each option, the perspective for discussing options, and other points to be noted.
- Such discussion clarified problems to be further considered for each issue. At the same time, it was revealed that, with some issues, opinions will possibly converge on the fundamental direction and the work plan while opinions are still divided with other issues.
- Therefore, in order to clarify the direction of work to be done in the future, for those issues about which opinions can converge in terms of directions, etc., those directions and problems for further discussion are to be clarified. At the same time, for those issues about which opinions diverge, not only are problems for further discussion to be clarified, but proposals about individual issues are systematically combined to create options that are sorted and evaluated to find the direction of possible convergence.
- In addition, in light of the result of such discussion about the problems with each issue and the evaluation of those options, we will reconsider scheme issues and summarize the overall scheme.

Scheme Issues in Perspective: Overview

Issues pertaining to the scheme are classified into 1. those about which opinions will possibly converge in terms of direction, etc. and 2. those about which opinions greatly diverge. Different views on issues falling under 2 are summarized and organized into three options for further discussion.

In light of the result of such discussion, we will reconsider scheme issues and summarize the overall scheme.

I Basic concept for the Scheme Discussion

1. Role to be played by the scheme
2. Perspective for discussing each issue

II Elements about which opinion will possibly converge in the future

1. Elements about which opinions will possibly converge in terms of basic direction

- Scheme period
- Covered gas
- Entities to which emission allowances are allocated
- Cost containment measures (banking, borrowing, etc.)
- Commitment period and compliance rules
- Emission monitoring, reporting, and third-party verification
- Registry system
- Market surveillance

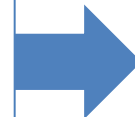
2. Elements about which common understanding can be roughly obtained in determining discussion direction

- Total amount of emission allowances
- Considerations regarding international competitiveness and carbon leakage
- Considerations for contribution by technology and products to emission reduction in Japan and abroad (life cycle evaluation)
- Roles of national and local governments
- Policy mix

III Elements about which opinions diverge greatly <Options >

- Treatment of electricity
 - Indirect emission / direct emission
- Allocation method
 - Auction
 - /Free allocation (Grandfathering / Benchmarking)
 - Absolute emission target/Intensity target

Three options are formulated from these elements from the viewpoints of environment conserving effects and consideration for economic activities



A	Electricity as direct emission + Absolute emission target (Auction)
B	Electricity as indirect emission + Absolute emission target (Free allocation) + Intensity target for electricity
C	Electricity as indirect emission + Intensity target

I Basic concept for the scheme discussion

1. Role to be played by the scheme

1. A mechanism for a steady and effective reduction of the absolute GHG (greenhouse gas) emissions is required for realizing the mid- and long-term targets of a large reduction over a long period.
2. In terms of emission sources, it is difficult to regulate GHG emissions from each individual household and private automobile partly because of high administrative costs. In regulating emissions from these sectors, such programs are effective as promoting energy efficient electric appliances and regulating automobile fuel efficiency. On the other hand, compared with such emission sources, large factories and buildings are characteristically responsible for greater emissions and are easily subject to effective measures.
3. In those sectors, a “Voluntary Action Plan,” which puts together voluntary targets and efforts based on each industry’s own rules, has played a certain role in achieving the Kyoto Protocol Target. However, in order to ensure the future realization of a mid- and long-term emission reduction in Japan, such a mechanism is required that guarantees an absolute emission reduction by facilitating each entity’s emission reduction based on more transparent and fair rules.
4. An emissions trading scheme based on cap and trade is a scheme to ensure an absolute emissions reduction by setting emission allowances (caps) on GHG emissions from large sources. It allows trading of emission allowances with a view to enabling flexible fulfilment of their commitment by each entity. This prices carbon and leads to economic incentives for an entity to make efforts for emission reduction. In response to requests in 1-3 above, it is necessary to design a scheme in such a manner that allows it to play its expected role.
5. In so doing, from the viewpoint of promoting global warming countermeasures while maintaining economic growth and job security, considerations are also required for promoting development and diffusion of world-leading environmental technologies that add to Japan’s strength, maintaining international competitiveness, preventing carbon leakage and speculative behavior (excessive speculation), etc.

2. Perspective for discussing each issue

<Perspective of the role of the scheme itself>

1. Realize absolute emission reduction.

- The scheme should realize absolute emission reduction in Japan.

<Perspective necessary for the scheme to play its role>

2. Facilitate effective emission reduction.

- It should facilitate covered entities to effectively reduce their emissions.

3. Ensure fairness.

- It should provide fair rules that reflect reduction efforts in the past and take into account the responsibility for emitting GHG.

4. Ensure transparency.

- It should provide objective and clear rules that exclude arbitrariness.

<Issues to be considered as much as possible when designing scheme>

5. Contain the costs borne by covered entities.

- The scheme should not increase emissions on a global scale. (prevention of carbon leakage)
- It should not hinder technology development and diffusion.
- It should not impair international competitiveness.

6. Keep the scheme simple without complex procedures.

- It should keep administrative costs low and be transparent to covered entities.

II Elements about which opinion will possibly converge in the future

1. Elements about which opinions will possibly converge in terms of basic direction

(1) Scheme period

- Since this is a measure to achieve mid- and long-term targets, initially it will be implemented by dividing the period from FY2013 to FY2020 into two phases (for instance, periods from FY2013 to FY2015 [3 years] and from FY2016 to FY2020 [5 years]).

(2) Covered gas

- In light of the fact that about 95% of GHG emissions in Japan are CO₂ (from fuel combustion and non-fuel combustion) as well as of monitoring accuracy and availability, CO₂ alone shall be covered by the scheme initially.
- The scheme shall incrementally extend its coverage to other GHGs on the basis of consideration in terms of MRV (monitoring, reporting and verification).

Topics for further discussion

- ✓ Evaluation of the feasibility of monitoring CO₂ from non-fuel combustion (specifically from waste) and of impact of using waste as fuel

(3) Entities to which emission allowances are allocated

1. Point of allocation

- Emission allowances shall be allocated to “downstream entities” because this provides a direct incentive for emission reduction to those who actually consume fossil fuels and emit CO₂, and has an affinity with the existing regulations.

2. Allocation unit (unit to which emission allowances are allocated and is required to fulfill its commitment to reduce emission and surrender of allowances)

- Entity (legal entity) subject to the scheme is required to fulfill the commitment to reduce emission, and emission allowances for a given entity are defined as the aggregate emissions from its facilities above threshold. Although monitoring, reporting and verification (MRV) of emission are to be conducted on a facility basis, it is conceivable that verification will be performed on an entity basis if internal controls in the entity are functioning to make it possible. Whether or not an entity's commitment is divided and allocated to its facilities above threshold is subject to discussions of its advantages and disadvantages.
- It is also necessary to discuss how to treat a case where multiple entities set up facilities in a single building.

3. Treatment of newly established or closed facilities

- From the viewpoint of fairness to the existing facilities, it is conceivable to allocate emission allowances to new entrants in the same manner as to the existing entities.
- Furthermore, it is necessary to discuss how changes of a facility including closure should be treated.

Topics for further discussion

- Clarification of definition of a facility (boundary)
- Treatment of facility (such as a building) that accommodates multiple entities
- Determination of a threshold
- How to set an allocation unit if the scheme stands on Law Concerning the Promotion of the Measures to Cope with Global Warming and covers chain business operators (such as a franchise chain) or specified transport emitters (such as transporters).
- Concrete definitions for new establishment and closure of facilities; concrete reasons and requirements for changes to installations
- Concrete procedures for allocating emission allowances to newly established or closed facilities

(4) Cost containment measures

1. Banking and Borrowing

- Banking shall be allowed because it is expected to facilitate early reductions.
- It is considered appropriate not to allow borrowing because it increases future risk of non-compliance. However, the possibility to allow borrowing substantially by allocating this year's allowances before last year's retirement deadline is to be deliberated.

Topics for further discussion

- Requirement for borrowing and concrete procedures in case it is allowed.

2. Use of External Credits

- External credits may include domestic offset credits issued for emission reductions and sinks not subject to the scheme, and credits issued under international schemes such as the Kyoto mechanism.
- As external credits facilitate reduction and sinks in sectors not covered by the scheme and, at the same time, are expected to suppress hikes in emission allowance prices, use of external credits is allowed if they are sufficiently reliable. In addition, a certain quantitative limit shall be set on their use because allowing their unlimited use can stall reductions in sectors covered by the scheme and in Japan as a whole.

Topics for further discussion

- Setting a quantitative limit (an upper limit on external credits in surrendering allowances)
- Setting quality certification scheme and requirements for usable credits (project type, additionality, MRV accuracy, etc.)

3. International Link to other ETS

- Whether the scheme should be linked internationally with those in other countries remains to be discussed as an issue to be addressed in the future, taking into account of its advantages such as suppressing hikes in emission allowance prices and its disadvantages such as causing capital outflows to overseas emission allowance markets, while deliberately examining the harmonization within the scheme (MRV level, allocation method, point of allocation, etc.)

4. Strategic (Cost Containing) Reserve

- The government shall reserve a certain amount of emission allowances in advance.

Topics for further discussion

- Reserve scale and requirements for its usage (when to use it)

(5) Commitment period and compliance rules

- One-year commitment period is appropriate for the purpose of checking compliance status every year.
- Penalties or other appropriate actions are required for non-compliance.

Topics for further discussion

- ✓ Scheduling of a series of events from allocating emission allowances through emission monitoring, verifying, and reporting to surrendering emission allowances
- ✓ Concrete procedures for compliance
- ✓ Concrete contents of penalties

(6) Emission monitoring, reporting, and third-party verification (MRV)

- Emission need to be accurately accounted under uniformed rules for the purpose of ensuring the reliability of the scheme, fairness among covered entities, and guaranteeing quality of emission allowance.
- To exclude errors and arbitrary operations in accounting emission, the existence of a third-party organization is essential for verifying the results of accounting independently from covered entities.
- It is necessary to establish guidelines and certify verification agencies by referring to international standards (ISO), etc.

Topics for further discussion

- ✓ Establishment of uniformed guidelines regarding monitoring, reporting, and verification, and specific information to be reported and disclosed
- ✓ Possibility of and requirements for entity-based verification
- ✓ Requirements for registration of verification agencies

(7) Registry system

- It is necessary to establish the registry system by referring to the National Registry System that manages Kyoto credits. Furthermore, for effective management of the scheme, a data management system for recording past emissions and the compliance status shall be established at the same time.
- The legal nature of emission allowances shall be stipulated in order to provide legal status to the electronic recording of emission allowances on the registry and to ensure stable trading of emission allowances.

Topics for further discussion

- ✓ Planning and designing system specifications for registry and data management systems
- ✓ Codification of legal discipline concerning emissions trading

(8) Market surveillance

- Smooth emissions trading is a prerequisite for the scheme to function properly in an expected efficient manner. There are also criticism of and concern for speculative behavior. Therefore, in addition to registry and emission management systems and legal discipline concerning emissions trading, it is required to establish:
 1. rules concerning trading (who can trade, what transactions to regulate, etc.)
 2. accounting and tax rules (classification for the accounting and tax purpose, etc.)
 3. trading infrastructures (exchange, clearing house, etc.)

Topics for further discussion

- ✓ Rules concerning trading (who can trade, what transactions to regulate, etc.)
- ✓ Treatment of emission allowances for accounting and tax purposes
- ✓ Government role in the market (appropriate disclosure of information, prevention of price hike, etc.)

2. Elements about which common understanding can be roughly obtained in determining discussion direction

(1) Total amount of emission allowances

- Since this is a scheme for facilitating a reduction in emissions from large sources, covered sectors and industries shall be chosen primarily from among industry, business, and energy conversion sectors. Absolute amount of emission allowances shall be set for the chosen sectors and industries.
- The total amount of allowances is to be calculated on the basis of Japan's total mid- and long term emission amount estimated in the Mid- and Long-term Roadmap, in accordance with the viewpoint of ensuring the total emission amount materialized by the result of emission reduction initiatives in each sector. Taking into account the total emission amount, allowance allocation shall be conducted in accordance with entities' emission reduction potentials.

Topics for further discussion

- ✓ Specification of covered sectors and industries
- ✓ Calculation method of the total emission estimates
- ✓ Method for determining emission path up to 2050 in accordance with the above procedure in order to signal the society to realize a low-carbon society over a long period and to promote systematic capital and technology investment.

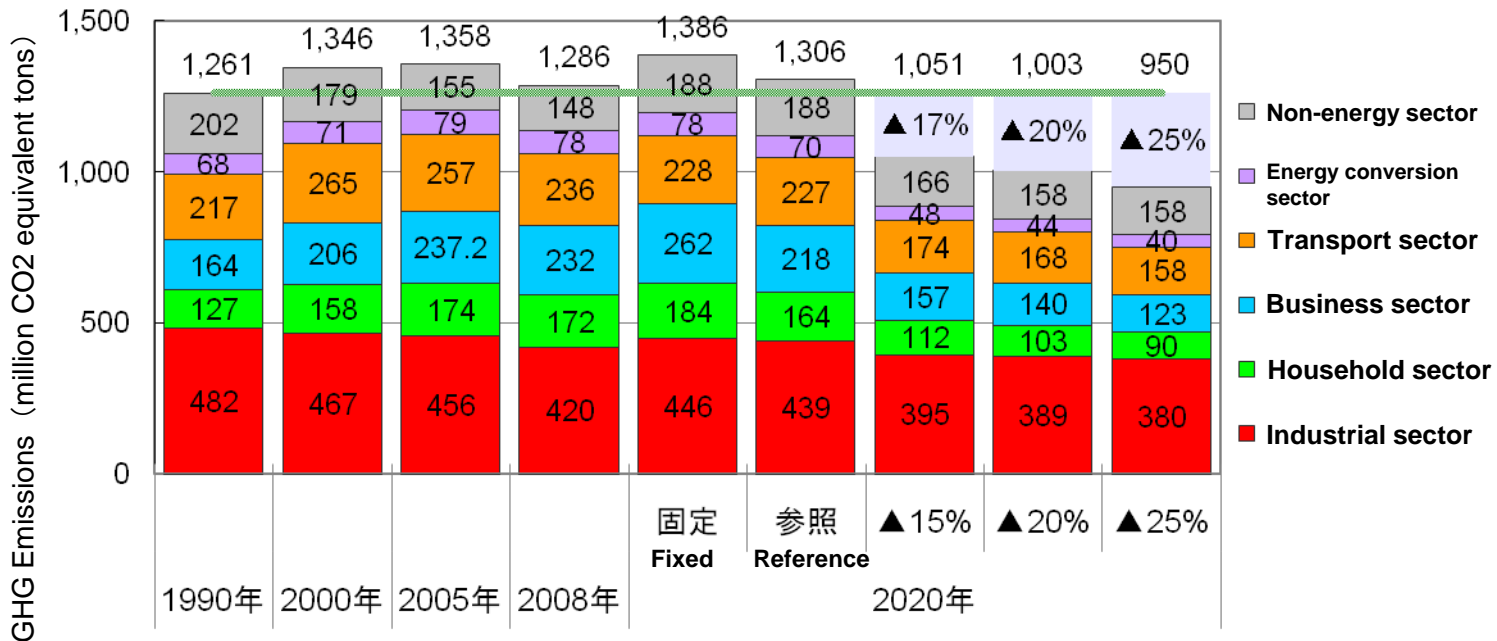
(Reference 1)

GHG Emissions in 2020

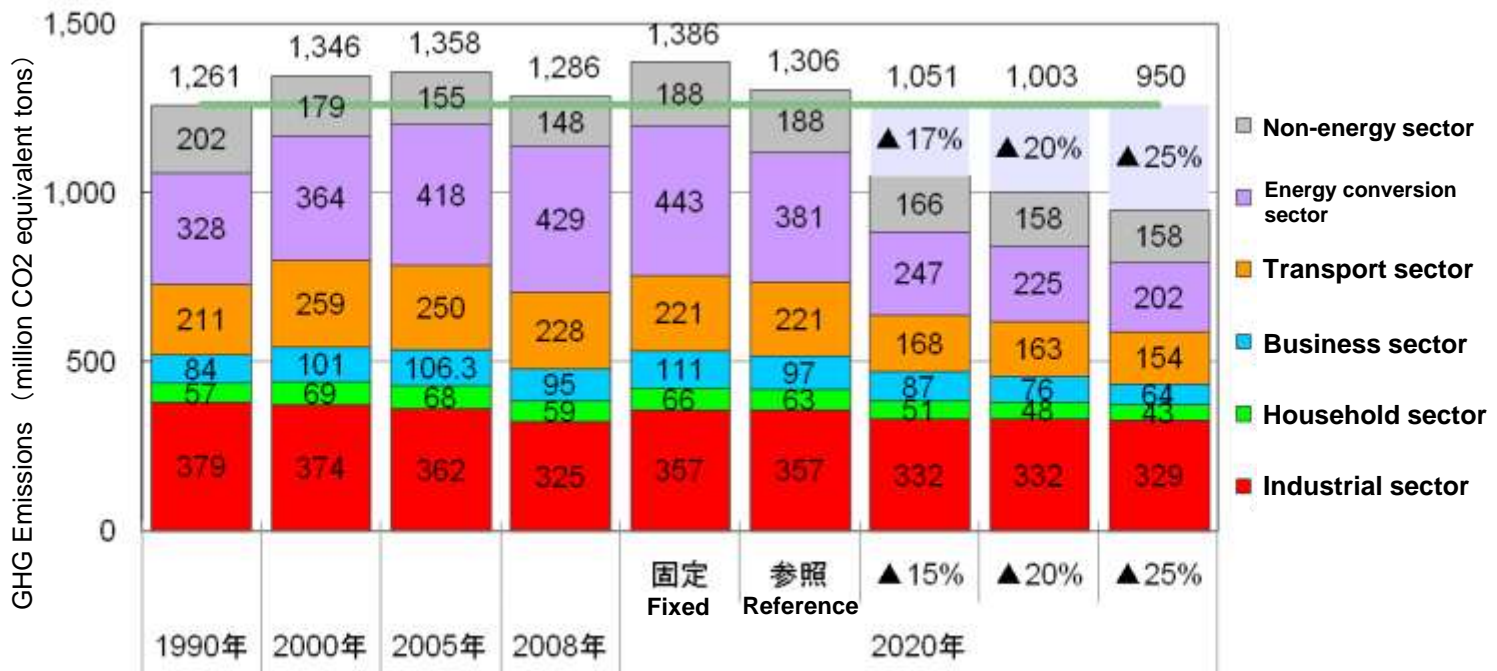
Fixed Industrial Macroframe Scenario

Source: Subcommittee on Mid- and Long-term Roadmap (July 29)

[Indirect emission]



[Direct emission]



Note) 2020 ▲15% · ▲20% · ▲25%: denotes scenarios where GHG emissions in Japan are reduced by 15%, 20%, or 25%, respectively, relative to 1990 by domestic countermeasures.
2030 : 2030 emissions estimated by assuming the continued enforcement of measures for 25% emission reduction in 2020.

(2) Considerations in setting emission allowances

1. Considerations for international competitiveness and carbon leakage

- It has been pointed out that different strictness of regulations in different countries influences international competitiveness and can lead to carbon leakage, an overall global increase in emissions resulting from increased production in countries with weaker regulation.
- In considerations for international competitiveness and carbon leakage, it is considered necessary in scheme design to establish the following criteria and give consideration to industries and products meeting these criteria in determining emission allowances.

<conceivable criteria>

1. Extent of magnitude of GHG emissions entailed by production (carbon intensity)
2. Extent of international competition to which an entity is exposed to (trade intensity)

Topics for further discussion

- ✓ Establishment of specific criteria concerning carbon and trade intensity
- ✓ Conducting an analysis using input-output table data and choosing industries and products to which consideration should be given
- ✓ Discussion of specific methods of consideration

2. Considerations for contribution by technology and products to emission reduction in Japan and abroad

- There is an opinion that emission reduction effects of products, especially those with large emission reduction effects in user side, should be evaluated based on life cycle assessment (LCA) and such reduction effects are to be rewarded to their manufacturers. In light of such an opinion, certain considerations in emission allowances allocation should be given to technology and products contributing to emission reduction in Japan and abroad (solar panels, energy efficient electric appliances, eco-friendly cars, etc.).
- In examining concrete actions, however, it is necessary to specify technical problems and explore their solutions: how to account that emission reduction by entities not covered by the scheme is regarded as emission reduction achieved by entities covered by the scheme, what specific methods are available for calculating and rewarding reduction effects.

Topics for further discussion

- ✓ Setting requirements for products covered (what products should be covered)
- ✓ Codification of methods for calculating and verifying the amount of reduction (how to reward reduction effects)
- ✓ Specific assistance measures (additional allocation of emission allowances, emission adjustment, offset credit certification, etc.)

(3) Roles of national and local governments

- If an emissions trading scheme based on national law is introduced under the circumstances in which emissions trading scheme based on local governmental ordinances is already in place, both national and local schemes at least need to have legal foundation since it is essential to perform emission monitoring and reporting under uniformed standards. In this case, it should be considered whether it is appropriate to characterize a local scheme in such a manner as to avoid excessive burden on or confusion to entities covered; or to have a single nation wide scheme and to stipulate roles of national and local governments later on. Advantages and disadvantages of each alternative shall be evaluated to determine policy direction.
- Some measures shall be explored for evaluating early reduction efforts by entities which have made such efforts under an emissions trading scheme based on the existing ordinances.

Topics for further discussion

- ✓ How the roles of national and local governments can be articulated under the scheme based on national law.
- ✓ Whether it is possible to evaluate reduction efforts made under an ordinance based scheme that precedes the enforcement of a statutory scheme

(4) Policy mix

- In order to achieve mid- and long-term targets, it is important to implement countermeasures in appropriate policy mix while clarifying the division of roles among those measures including the main three policy measures.
- Although there are only limited examples of making adjustment between emissions trading and global warming taxation system in foreign countries, it is suggested to discuss elements pertaining to Japanese emissions trading scheme in order to coordinate different measures.

[Roles of the main three policy measures]

- Role of an emissions trading scheme based on cap and trade system
Facilitate a steady reduction in the total GHG emissions from large sources, primarily, industry, business, and energy conversion sectors.
- Role of global warming tax
Provide an economic incentive to the economic society at large, including small emission sources such as households for constructing a low carbon society. This measure also has a role of raising finances.
- Role of the feed-in tariff system for renewable energy
Provide an economic incentive for constructing a society that does not depend on fossil fuel by increasing the proportion of electricity from renewable energy sources.

Topics for further discussion

- ✓ Coordination with other measures for a division of role and verification of effects and impacts of the entire measures
- ✓ Discussion of elements pertaining to an emissions trading scheme that should be considered for coordinating different measures

III Elements about which opinions diverge greatly <options>

(1) Treatment of electricity

[Reference 2]

Should electricity (emissions entailed by electricity generation) be characterized as **direct emission or indirect emission**?

If it is characterized as indirect emission, how should a reduction be guaranteed in electric emission intensity (CO₂ emissions per 1kwh)?

- * direct emission: counting CO₂ emissions resulting from electricity generation as emissions from electricity companies that directly emit CO₂.
- * indirect emission: counting and allocating CO₂ emissions resulting from electricity generation to electricity users (such of individual entities) in proportion to the amount of their electricity consumption.

(2) Allocation method

1. Combination of allocation methods [Reference 3]

- How should the following methods be combined for allocating emission allowances from the total allowances to an allocation unit?

[Free allocation]

- Benchmarking: Emission allowances allocated based on desirable emission intensity specific to industry or product (CO₂ emissions per unit of production) <emission allowances = activity level (past or predicted level) x benchmark>
- Grandfathering: Emission allowances allocated based on the past emissions.

[Auction]: Emission allowances distributed by auction.

2. Absolute emission target/Intensity target [Reference 4]

- How should intensity target be construed?

(Reference2) Treatment of electricity compared

	Electricity as Indirect Emission	Electricity as Direct Emission
Reduction effects	<ul style="list-style-type: none"> Provides a direct incentive for emission reduction to electricity users. 	<ul style="list-style-type: none"> Provides a direct incentive for emission reduction to electricity suppliers. (Although it does not provide a direct incentive for emission reduction to electricity users, if the reduction cost on the part of electricity suppliers is passed on to electricity price, it provides an indirect incentive for reduction to users.)
Coverage	<ul style="list-style-type: none"> Relatively low. (Since it is difficult to allocate emission allowances to all electricity users, coverage is limited.) * It is, however, possible to influence sectors not covered by the scheme by obligating electricity suppliers to improve emission intensity. 	<ul style="list-style-type: none"> Relatively high (Almost all the emission resulting from electricity generation can be covered.)
Affinity with existing laws	<ul style="list-style-type: none"> Yes (Same as the Basic Act on Global Warming Countermeasures) 	<ul style="list-style-type: none"> No (It is necessary to discuss relation with the supply obligation under the Electricity Business Act)
Notes	<ul style="list-style-type: none"> Since electricity users can not control electricity emission intensity, it is suggested to obligate electricity suppliers to improve their emission intensity and apply improved emission intensity as a given emission factor of electricity to electricity users. 	<ul style="list-style-type: none"> Since the obligation to supply electricity is imposed on electricity suppliers, it is possible that the fulfillment of their compliance becomes difficult only by their efforts (emission intensity improvement) unless credit purchase is allowed. Since electricity users can not recognize the cost of GHG emissions without cost passed on to electricity price, there is a concern that an incentive for emission reduction may not be provided.
Situation of other schemes	<ul style="list-style-type: none"> Basic Act on Global Warming Countermeasures (monitoring, reporting, and disclosure scheme) Scheme of Tokyo Metropolitan Government (Tokyo ETS) 	<ul style="list-style-type: none"> EU-ETS U.S. bills

(Reference3) Allocation methods compared

	Free allocation		Auction
	Grandfathering	Benchmarking	
Environmental integrity	<ul style="list-style-type: none"> If the total emission allowances are determined in advance, any method of allocation can achieve absolute emission reduction within that extent. 		
Efficiency	<ul style="list-style-type: none"> Allocation in proportion to past emissions may distort early reduction efforts and may not necessarily realize an effective reduction for the society as a whole. 	<ul style="list-style-type: none"> Although this is more effective than grandfathering, as long as allowances are allocated for free, it is possible that certain distortions are unavoidable including the prolonged use of old facilities and the absence of innovation in countermeasure technologies. 	<ul style="list-style-type: none"> Avoids distortions such as the prolonged use of old facilities and absence of innovation in countermeasure technologies and can achieve an effective reduction for the society as a whole. Auction profit can be used for further emission reduction measures (double dividend).
Fairness	<ul style="list-style-type: none"> Susceptible to political arbitrariness since the government allocates emission allowances based on limited information. 		<ul style="list-style-type: none"> The most appropriate from the perspective of the responsibility for GHG emission since the resulting cost is bore in proportion to the amount of emission. Highly fair as emission allowances to be purchased are less for those who have achieved reduction in the past.
	<ul style="list-style-type: none"> As allocation in proportion to past emissions can result in the preferential treatment of those who failed to make efforts for reduction in the past, it is difficult to guarantee fairness strictly. 	<ul style="list-style-type: none"> It is possible to enhance fairness by taking account of production efficiency to reflect past reduction efforts. It is, however, difficult to establish a benchmark for every industry/sector covered. 	
Transparency	<ul style="list-style-type: none"> Susceptible to political arbitrariness since the government allocates emission allowances based on limited information. 		<ul style="list-style-type: none"> High transparency can be ensured because emission allowances are purchased by covered entities in proportion to the amount of their emission based on their own judgment, which precludes political arbitrariness.
Social acceptability	<ul style="list-style-type: none"> Low cost burden for covered entities since they only have to bear the reduction cost for emissions exceeding their initial emission allowances. 		<ul style="list-style-type: none"> High cost burden since covered entities have to bear the cost for all emissions unless cost-shifting is possible.
Simplicity (administrative cost)	<ul style="list-style-type: none"> Relatively high administrative cost due to necessity for the collection of data on which allowances allocation is based and for a coordination among covered entities. 		<ul style="list-style-type: none"> Relatively low administrative cost since the government only has to determine auction rules.

* In addition to the above, it is necessary to consider the affinity with schemes in foreign countries, etc.

(Reference 4) Absolute Emission Target and Intensity Target

	Absolute Emission Target	Intensity Target
Summary	<ul style="list-style-type: none"> ▪ Sets a limit on the total amount of GHG emissions. 	<ul style="list-style-type: none"> ▪ Sets a limit on GHG emission intensity. (Benchmarking is one way to achieve an absolute emission target and not an intensity target.)
Perspective of absolute emission reduction	<ul style="list-style-type: none"> ▪ Absolute emission reduction is guaranteed. 	<ul style="list-style-type: none"> ▪ Absolute emission reduction is not guaranteed. (If an intensity target has been achieved, available-for-sale emission allowances* increase as production increases, which implies an incentive to emission increase.)
Perspective of compatibility with economic growth	<ul style="list-style-type: none"> ▪ Some indication that this method impedes the development of a growth industry. 	<ul style="list-style-type: none"> ▪ Idea of preferring economic growth to absolute emission reduction.
Perspective of corporate management	<ul style="list-style-type: none"> ▪ The verification of activity level is unnecessary. ▪ Since emission allowances are allocated ex-ante, trading is possible after their allocation until the surrender deadline. 	<ul style="list-style-type: none"> ▪ If capacity utilization rate declines due to recession, emission intensity deteriorates. There may be a case in which emissions reduction do not lead to compliance due to production decrease. ▪ The verification of activity level is additionally required. ▪ Since emission allowances are allocated after actual production has been determined* (ex-post allocation), the total amount of emission allowances allocated can not be predicted. Furthermore, emission allowances trading concentrates in a short period after allocation.

* It is controversial whether what is allocated ex-post can be called "emission allowances."

(Reference) Basic Act on Global Warming Countermeasures, Article 13.3

"With regard to the methods to set limits of greenhouse gas emission in a certain period, investigation shall be made basically into the method to set the limits as those to the total amount of greenhouse gas emission in a certain period [absolute emission target], while also investigating in the method to set the limits as those to the amount of emission per a unit of activity such as production volume [intensity target]."

Option A: Electricity as Direct Emission + Absolute Emission Target (Auctioning)

[Distributing emission allowances by auction to entities that directly emit GHG, including electricity companies, under absolute emission target]

(1) Treatment of electricity

- **Direct emission** are preferred since this results in high coverage and provides a direct incentive for emission reduction to electricity companies.

(2) Allocation method

- By **auctioning** from the perspective of efficiency, fairness, and transparency
- For CO2 emissions from fossil fuel consumed by entities other than electricity companies, that emitters shall be subject to allocation. There is an opinion to allow free allocation to these entities initially as an exception to the principle of distribution by auctioning.
- Emission allowances shall be allocated **at the beginning of the commitment period.**

Option B: Electricity as Indirect Emission + Absolute Emission Target (Free Allocation) + Intensity Target for Electricity

[Obligating electricity companies to improve emission intensity and allocating emission allowances for free (including emissions originating in electricity) to covered entities except electricity companies under absolute emission target]

(1) Treatment of electricity

- **Indirect emission** are preferred since this provides a direct incentive for emissions reduction to electricity users and has affinity with the existing schemes (emissions monitoring, reporting, and disclosure system, electricity supply obligations, etc.).
- At the same time, **electricity companies shall be obligated to improve emissions intensity to a certain target**. If a electricity company fails to fulfill its commitment, it shall purchase a credit equivalent to the difference between target and actual values multiplied by the actual amount of generation (including penalty for the failure to purchase the credit).

(2) Allocation method

- **Free allocation**, for the time being, from the perspective of ensuring both absolute emission reduction and social acceptability. (Auctioning is subject to future discussion.)
 - **Benchmarking**: for industries and products for which benchmarks can be developed (e.g. steel, cement).
 - **Grandfathering**: for any other industries or products. (A mechanism for accommodating past reduction efforts shall be explored.)
- Emission allowances shall be allocated **at the beginning of the commitment period**.

Option C: Electricity as Indirect Emission + Intensity Target

[Obligating entities that directly emit GHG, including electricity companies, to improve emission intensity and allocating allowances equivalent to an excessive reduction (electricity users are responsible for emissions originating in electricity)]

(1) Treatment of electricity

- **Indirect emission** are preferred since this provides a direct incentive for emission reduction to electricity users and has affinity with the existing schemes (emission monitoring, reporting, and disclosure system, electricity supply obligations, etc.).

(2) Allocation method

- **Covered entities shall only be obligated to improve emission intensity.** It is also conceivable to have them freely choose to adopt an intensity target or not.
- Since an absolute emission reduction is not guaranteed due to the absence of a limit to an increase in emissions resulting from an increase in production, some kind of mechanism is necessary to guarantee absolute emission reduction, including an obligation on sectors not covered by the scheme for a reduction that compensates for such an increase.
- Allowances corresponding to an excessive reduction are allocated **ex-post** after an actual emission amount has been determined.

[Intensity target regulation for emissions from electricity generation]

- ✓ Specific design for intensity target regulation for emissions from electricity generation
 - Coverage of intensity improvement measures and allocation unit (Scope of electricity companies covered, entity or electricity generation plant)
 - How to establish a reference value
 - Scope of covered entities' responsibility (only for electricity supplied to entities covered by the scheme or for the entire electricity supply)
 - Stage at which improvement is obligated (when electricity is generated or sold)
 - Emission efficiency factor given to electricity users (a single efficiency factor across nation or different efficiency factor for each electricity company)
- * There are various opinions concerning evaluation of reduction effects by electricity users' countermeasure.

[Allocation method]

Emission allowances allocation in light of entity's reduction potential

<Grandfathering>

- ✓ Procedures for setting base-year period and emission
- ✓ Procedures for setting a reduction rate and an adjustment factor
- ✓ Consideration for early reduction efforts

<Benchmarking>

- ✓ Classification of and selection criteria for products and industries (production processes) to which benchmarking is applied
- ✓ Clarification of the scope of production processes covered, clarification of the definition of activity level
- ✓ Procedures for developing benchmark values (e.g. based on the highest ___% of emission intensity for a given product or BAT for the product)
- ✓ Procedures for setting activity level for the calculation of emission allowances (reference period, consideration for growth rate, etc. into account)

<Auction>

- ✓ Requirements for auction participation
- ✓ Bidding procedures, frequency, auction hosting agency
- ✓ Use of auction profit

[Intensity target]

- ✓ Procedures for developing an emission intensity factor for each covered entity
- ✓ Is there any effective adjustment mechanism that guarantees the absolute emission reduction?