

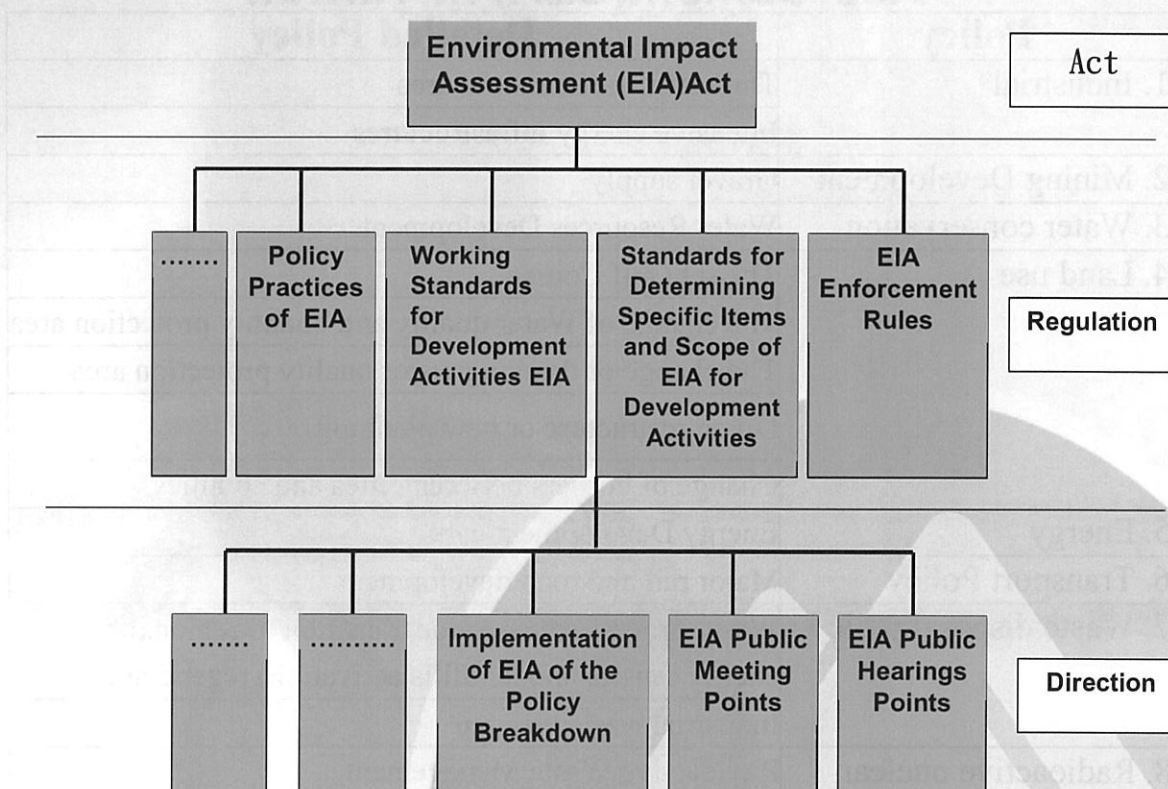
2015 Taiwan-Japan Environmental Conference

Environmental Impact Assessment institution and control of wind power generation in Taiwan

Ho Chi-Ying

Department of Policy Planning, EPA, Taiwan

The structure of EIA Act



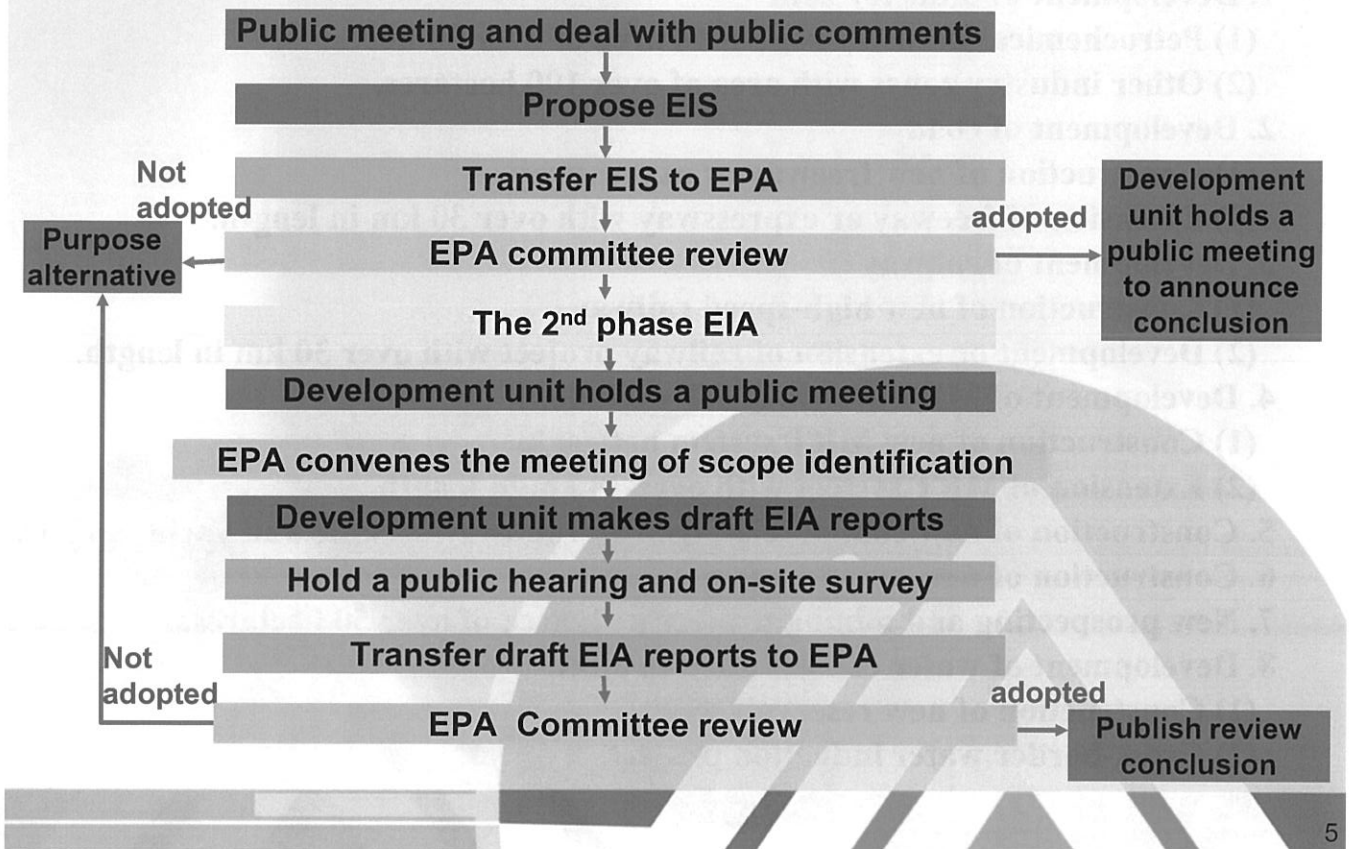
Development activities that must implement EIA in Taiwan

- Factories
 - Development of roads, railways, MRT systems, harbors and airports
 - Quarrying and mining
 - Water reserve and supply, flood control and drainage
 - Agriculture, forestry, fishery and animal husbandry
 - Recreation, scenic, golf and sports venues
 - Cultural, educational and medical buildings
 - Urban renewal and high-rise construction
 - Environmental Protection Engineering
 - Radioactive nuclear waste storage and disposal sites
 - Other potential cases announced by governmental authorities
- Standards for determining specific items and scope of EIA for development activities

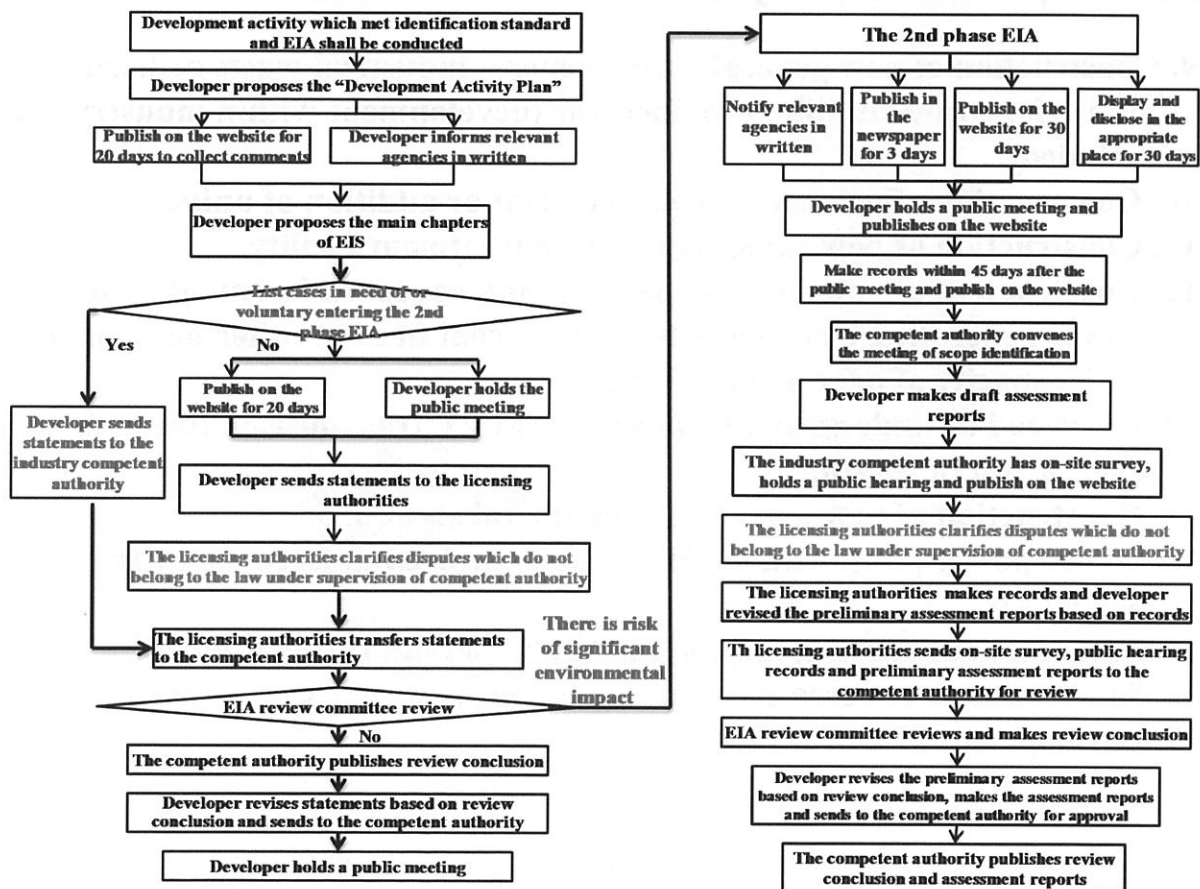
Implementation of Strategic Environmental Assessment(SEA) in Taiwan

Policy	Detailed Policy
1. Industrial	The set of the industrial area
	Intensive energy infrastructures
2. Mining Development	Gravel supply
3. Water conservation	Water Resources Development
4. Land use	The set Golf Course
	The change of Water quality and quantity protection area
	The change of drinking water quality protection area
	Urban restructure or new planning
	Change of borders between cities and counties
5. Energy	Energy Development
6. Transport Policy	Major rail and road development
7. Waste disposal policy	Waste process (incinerator transition to regional biomass energy centers and landfills activation) regeneration)
	Industrial waste cleanup
8. Radioactive nuclear waste disposal policy	Radioactive Waste Management

EIA Flow Chart



The detail Flow Chart of EIA



Development Activity Which Shall Conduct 2nd Phase EIA

- 1. Development of industry zone**
 - (1) Petrochemical industry zone with area of over 50 hectares.**
 - (2) Other industry zones with area of over 100 hectares.**
- 2. Development of road**
 - (1) Construction of new freeway or expressway.**
 - (2) Extension of freeway or expressway with over 30 km in length.**
- 3. Development of railway**
 - (1) Construction of new high-speed railway.**
 - (2) Development or extension of railway project with over 30 km in length.**
- 4. Development of MRT system (LRT excluded)**
 - (1) Construction of new MRT system network.**
 - (2) Extension of MRT system with over 30 km in length.**
- 5. Construction of new commercial, fishing, industry-specific and yacht harbor.**
- 6. Construction of new airport runway.**
- 7. New prospecting and mining project with area of over 50 hectares.**
- 8. Development of water conservation project.**
 - (1) Construction of new reservoir.**
 - (2) Cross-border water induction project.**

Development Activity Which Shall Conduct 2nd Phase EIA

- 9. Construction of new general waste, general industrial waste or hazardous industrial waste landfill or incinerator (development within industry zone excluded).**
- 10. Construction of new nuclear power plant or addition of units.**
- 11. Construction of new radioactive waste treatment facility.**
- 12. Construction of new thermal power plant, cogeneration plant or self-usage power generation equipment by fuel oil, coal fired or other non-gas fuels with capacity of over one million kW.**
- 13. Overhead or underground 345 kV or 161 kV transmission line laying with over 50 km in length.**
- 14. Construction of new extra high voltage substation.**
- 15. Hydro power plant with device capacity or accumulated capacity of over 50,000 kW.**
- 16. Embankment and drainage on the sea with land reclamation area of over 50 hectares or reduced natural coastal line of over 1 km in length.**
- 17. Development of new township.**

Division of EIA Review and Supervision

Type of Development Activity	EIA Review and Supervision	
	Central Competent Authority	Competent Authority of Municipality or County
1. Establishment of factory and development of industry zone	(1) Establishment of factory of state-run enterprise. (2) Industry zone with development area of over 30 hectares.	(1) Establishment of factory of non-state enterprise. (2) Less than 30 hectares of development area of industry zone.
2. Development of road, rail, MRT system, harbor and airport	(1) National expressway, provincial highway and road crossed two or more municipalities or counties (cities). (2) Railway (3) MRT system (4) Commercial, naval, fishing, industry-specific and yacht harbor (5) Airport	City, prefectural, district, township and downtown road as well as other roads located in the municipality or county (city).
3. Quarrying, prospecting and mining	Prospecting and mining	(1) Rock quarrying (2) Aggregate processing plant (3) Ceramics soil taking
.....

5

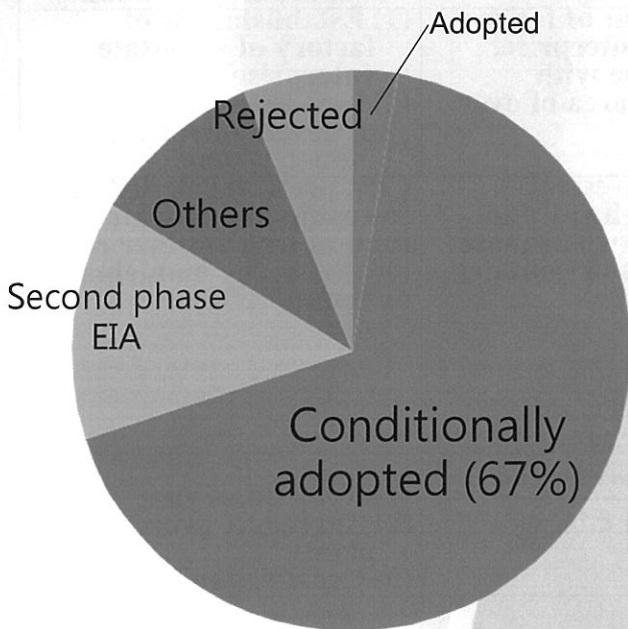
The EIA Institution of Taiwan, Japan and U.S.A

Country	Assessor	Reviewer	Characteristic	Veto power	The subject of judicial review
Taiwan	Development Unit	EPA	<ul style="list-style-type: none"> •Dedicated reviewer •Independent process and decision •veto power 	Development unit shall not be permitted to develop by the licensing authorities, if the EPA committee didn't approve the development activities. (EPA have veto power)	Conclusions of EIA
Japan	Development Unit	Licensing authorities	Based on the results of the EIA, the conditional permit may be licensed.	Licensing authorities should examine the environmental protection of development activities based on the assessment report and the comments from all sectors, reject or conditionally issued license. (EPA have no veto power)	Development decisions
USA	Licensing authorities	--	Assessment report should be completed before project decided, and supply the reference for decision makers.	Licensing authorities accept other departments and the public's comments, and decide whether issue licenses or not. (EPA have no veto power)	Development decisions

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EIA of Taiwan

Statistics of EIS review cases by EPA

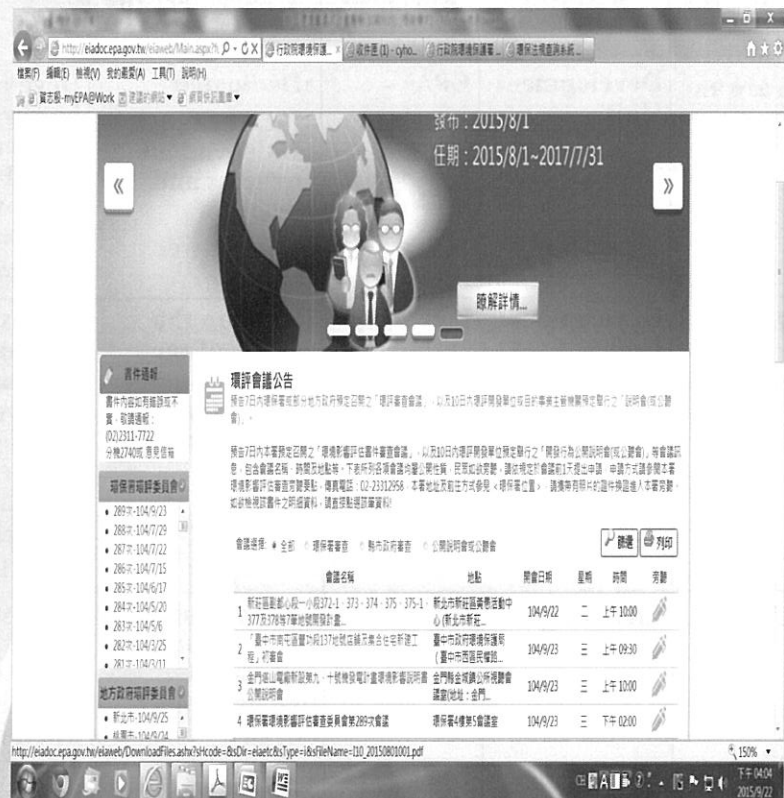


Conclusion of Examine	Ratio
Conditionally adopted	67%
Enter the second phase EIA	14%
Others (Cancelled, etc.)	10%
Rejected	6%
Adopted	3%
total	100%

Statistics period : 1995 - 2015
Total number of EIA cases : 890

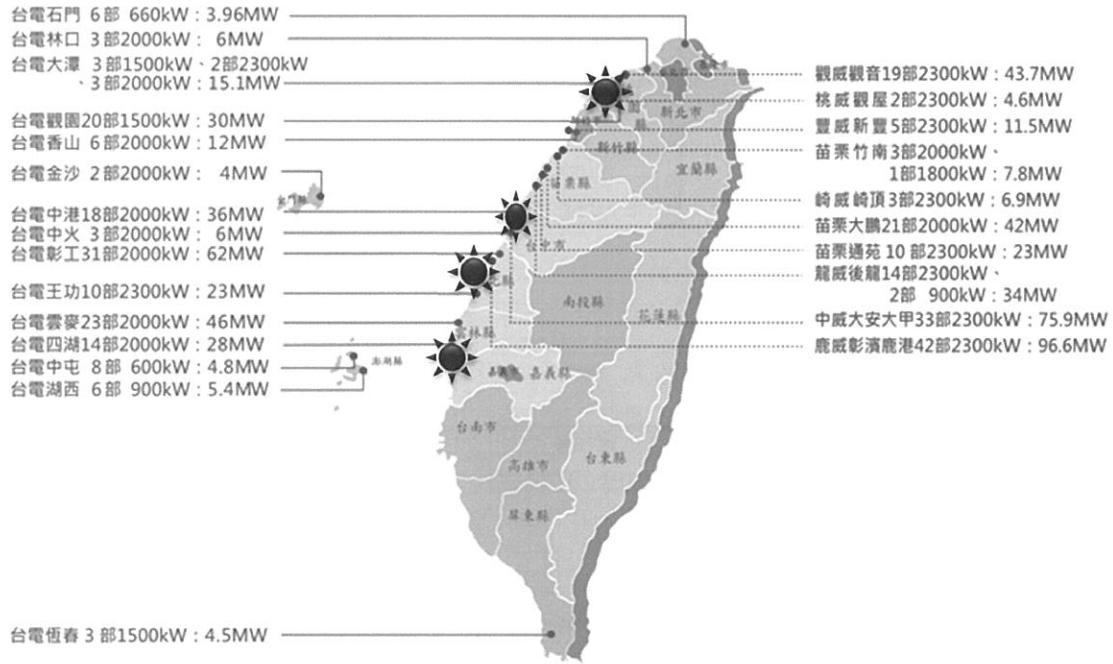
EIA Inquiry System

- Platform for development unit, Licensing authorities, EPA to publish EIA cases and meeting information.
- provides a discussing platform for everybody to express their views.
- Provide people to search information of EIA cases and files on the Internet.



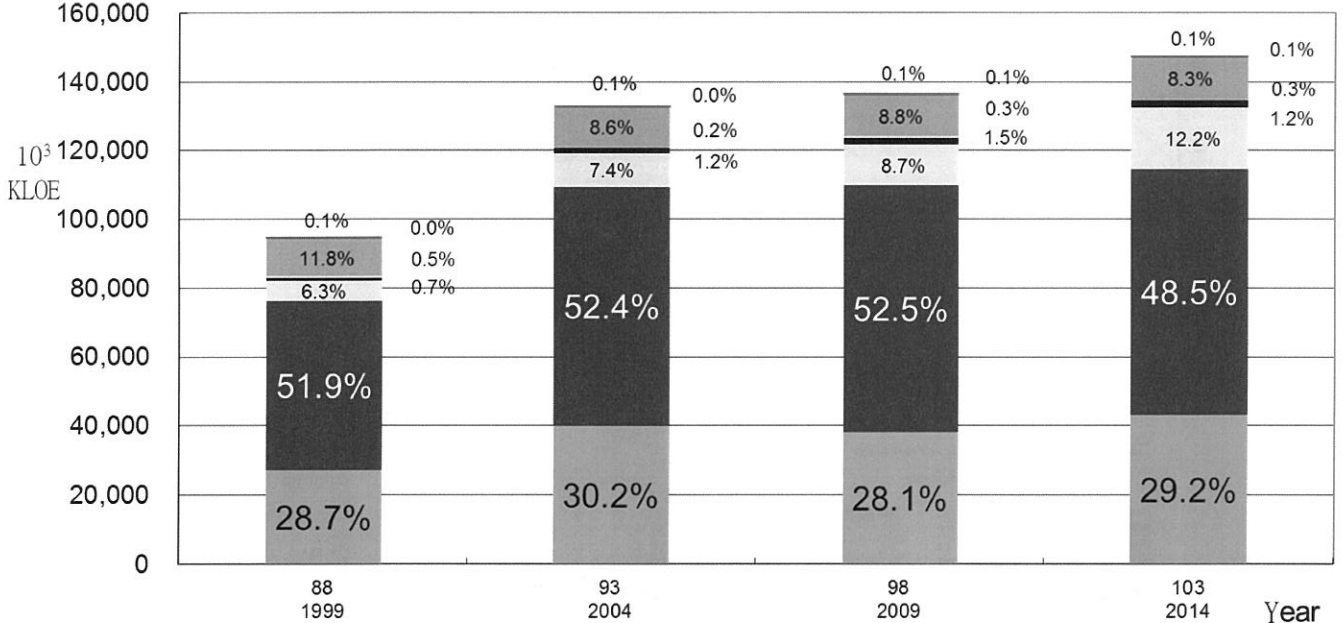
Distribution of wind power generation in Taiwan

國內風力發電分布圖

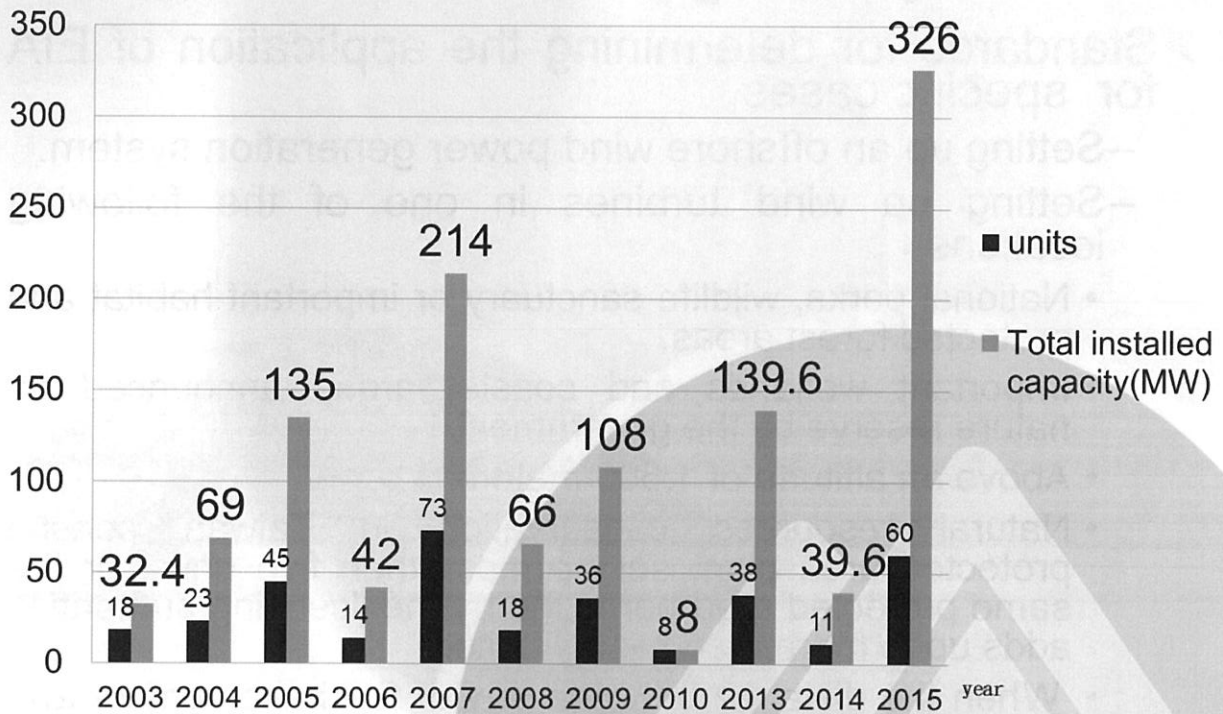


Energy Supply in Taiwan

- 煤及煤產品
Coal & Coal Products
- 廢棄物及生質能
Biomass and Waste
- 太陽光電及風力發電
Solar Photovoltaic and Wind Power
- 原油及石油產品
Crude Oil & Petrol. Products
- 慣常水力發電
Conventional Hydro Power
- 太陽熱能
Solar Thermal
- 天然氣
Natural Gas
- 核能發電
Nuclear Power

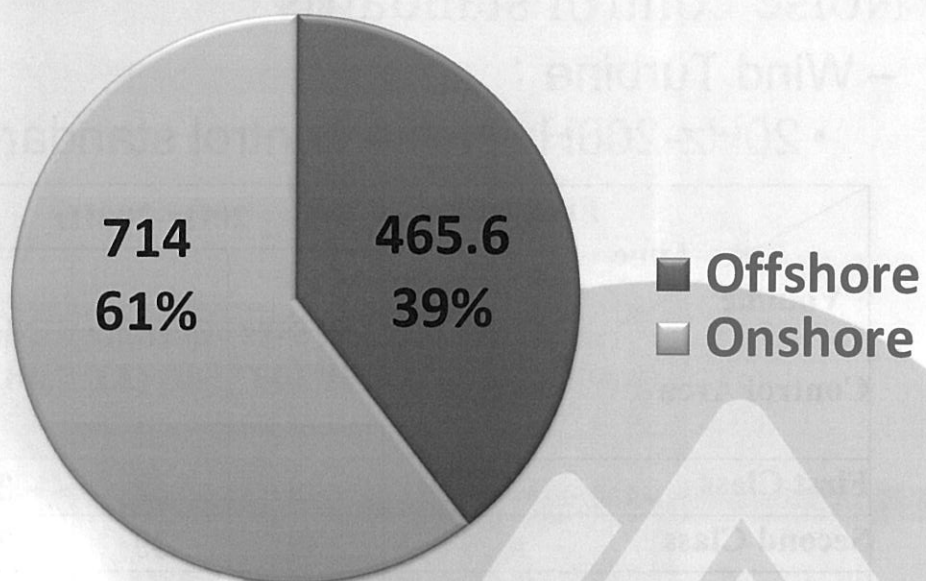


Changes in wind power generation adopted by the EIA



12

Proportion of onshore and offshore wind power generation adopted by EIA



13

The Environmental Protection Act of wind power generation in Taiwan

- Standards for determining the application of EIA for specific cases
 - Setting up an offshore wind power generation system.
 - Setting up wind turbines in one of the following locations :
 - National parks, wildlife sanctuary or important habitat and protected forest areas.
 - Important wetlands and coastal areas announced as nature reserve by the government.
 - Above an altitude of 1,500 meters.
 - Natural resources conservation in Taiwan coastal protected area plan, set up more than five units, or the same protected area permitted by the licensing authorities adds up to more than twenty units.
 - When the distance between any of fan base centers and the nearest boundary of buildings is less than 250 meters.

The Environmental Protection Act of wind power generation

➤ Noise control standards

– Wind Turbine :

- 20Hz-200Hz Noise control standard values:

Volume Control Area	Frequency Time	20Hz-200Hz		
		Daytime dB (A)	Evening dB (A)	Night dB (A)
First Class		39	39	36
Second Class		39	39	36
Third Class		44	44	41
Fourth Class		47	47	44

The Environmental Protection Act of wind electric power generation

➤ Noise control standards

– Wind Turbine

- 20Hz-20KHz Noise control standards

- (Implement the Noise Incremental Control) when the overall volume is over 50 dB (A) in the daytime and evening, or over 40 dB (A) at night.

- The wind turbine operation should not exceed background noise incremental volume 5 dB(A) .

Discussion

- What was the greatest difficulty the Japanese EPA has encountered about EIA?
- Have Japanese EPA ever been judicial litigated by the environmental groups or other groups in EIA procedure?

Discussion

- How to select offshore wind potential sites in Japan? Are the potential site implemented the strategic environmental assessment(SEA)?
- How is the decision made in Japan regarding which development unit can proceed with development if there are several developers who want to pursue development at the same time at the same offshore wind power generation area?

Thank you for listening

**We are looking forward to
your opinions and our further
discussions**

Current Situation for EIA in Japan

Taisuke YOSHIZAWA,
Environmental Impact Assessment Division,
Environmental Policy Bureau,
Ministry of the Environment, Japan

1

Purpose and Projects of EIA Law

(Purpose)

To consider environmental conservation properly by establishing a procedure for the EIA of large-scale projects and reflecting the assessment results in the decision-making (including licensing)

(Projects subject to the EIA Law)

1. Road expressway, national roads, large-scale forest road
2. River dam, weir, diversion channel, lake-related development
3. Railway
4. Airport
5. Power Plant hydraulic, thermal, geothermal, nuclear, wind
6. Waste disposal site
7. Landfill and reclamation
8. Land readjustment project
9. New Residential area development project
10. Industrial estate development project
11. New town infrastructure development project
12. Distribution center complex development project
13. Residential or industrial land development by specific organizations

and Port and harbor planning

2

Points

- Before the construction of huge project with government approval (E.g. road, dam, airport..), project proponent must survey, forecast, and evaluation and reflect the result for more environmentally friendly project
- Procedure for information sharing with relevant citizens and others to support project proponent for better environmental consideration.
- Not the regulation law, but the procedure law.
- Assessment Result will be reflected in licenses etc.

3

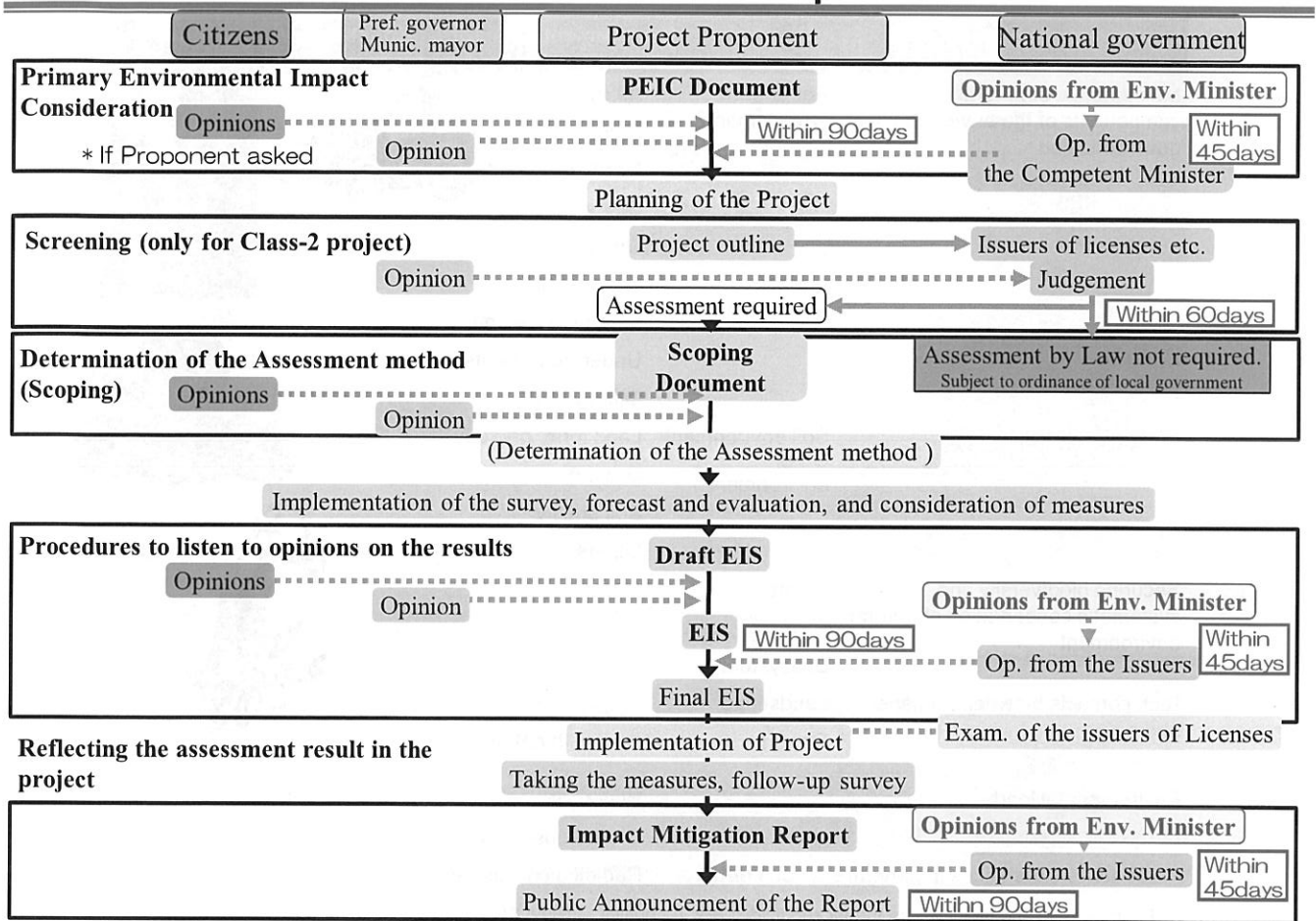
Implementation Status of the Legal EIA Procedures

(as of 31st. March 2015)

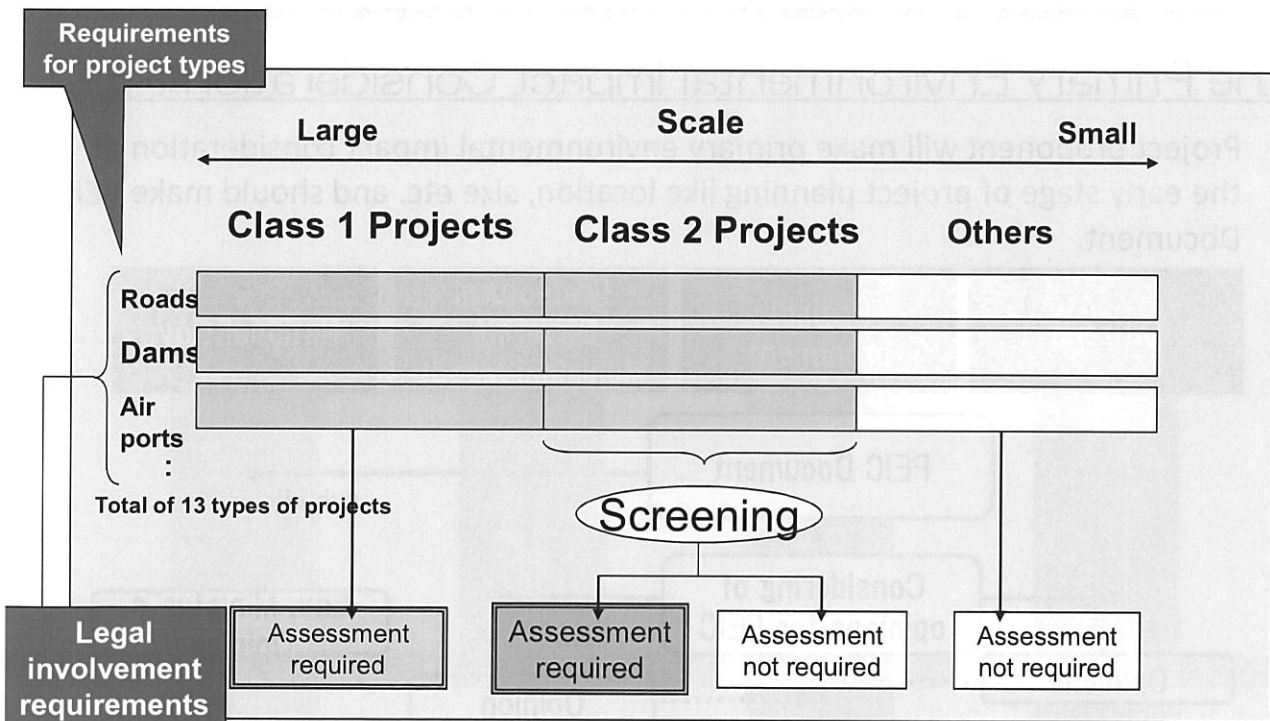
	Road	River	Railway	Airport	Power plant	Waste disposal site	Landfill and reclamation	Land readjustment	Total
Total	81	8	18	10	201	6	17	21	355
- On-going	10	0	3	1	113	1	3	2	132
- Completed	62	7	13	8	65	5	12	14	181
- Aborted	9	1	2	1	23	-	2	5	42
Opinions of the Minister of the Environment	64	7	14	8	114	-	5	15	224

4

Brief overview of EIA procedure

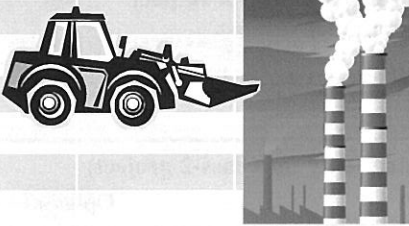




Projects Subject to the EIA Law (1/2)



Among these projects, (1) projects required to be approved, (2) projects to be granted with subsidies, (3) projects to be carried out by Independent Administrative Agencies, and (4) projects to be carried out by the State shall be subject to the Law.

Classification of Factors and Elements of Impacts to be Subject to Scoping

Environmental Elements	Environmental Factors	Construction	Existence/Provision
Maintenance of natural components of the environment in good condition	Aerial environment	Air quality	
		Noise	
		Oscillation	
		Bad smell	
		Others	
	Aquatic environment	Water quality	
		Bottom sediments	
		Underground water	
		Others	
	Soil environment/ Other environment	Land form, geology	
		Ground	
		Soil quality	
Others			
Securing biodiversity and systematic conservation of natural environment	Plants		
	Animals		
	Ecosystem		
Rich contacts between humans and nature	Landscape		
	Opportunities to interact with nature		
Environmental load	Waste, etc.		
	Greenhouse gas		
Radioactive substances in general environment	Radiological dosage		

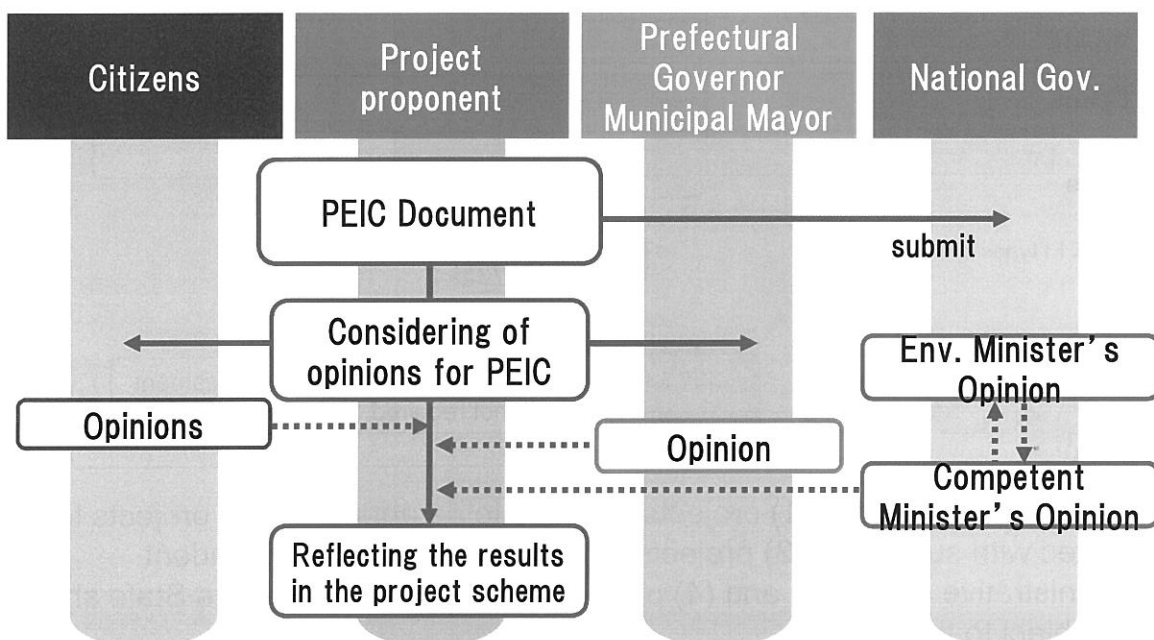
* Each element and factor will be further subdivided (Ex: Air quality → NO₂, SO₂, SPM...).

7

Procedure ①

the Primary Environmental Impact Consideration (PEIC)

Project proponent will make primary environmental impact consideration at the early stage of project planning like location, size etc. and should make PEIC Document.

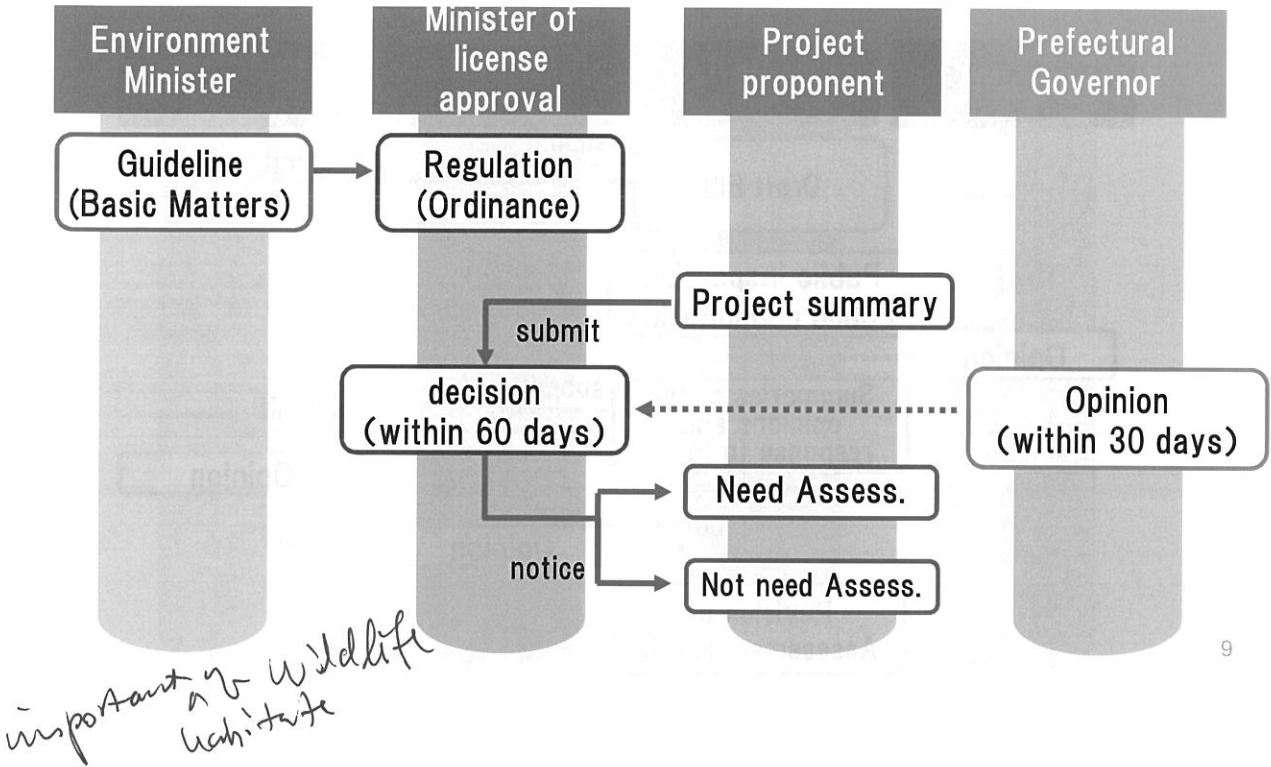


8

Procedure ②

Screening

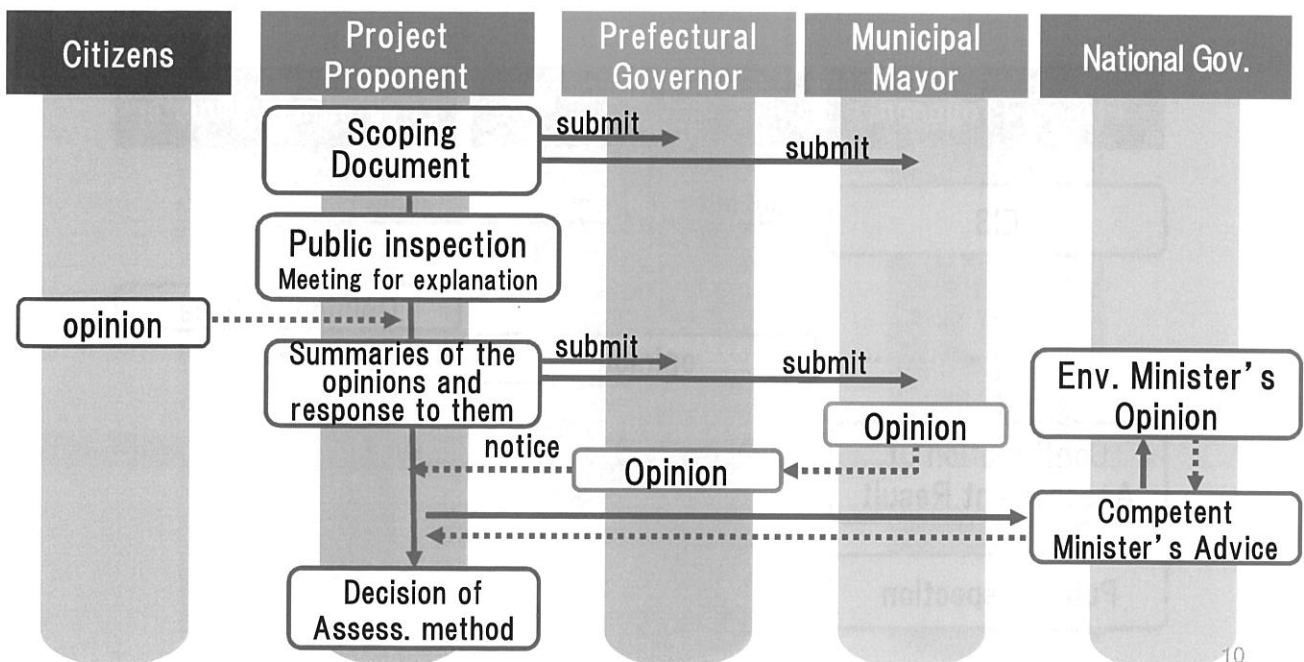
Screening each class-2 project whether it should do EIA process



Procedure ③

Scoping

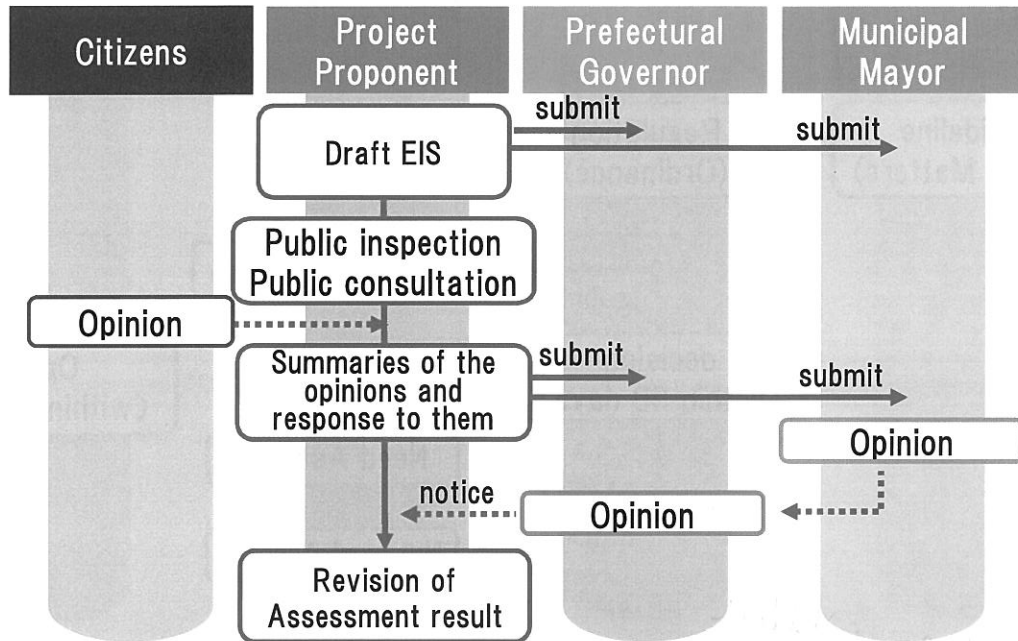
Determining items and methods of assessment with hearing opinion by citizens and local governors.



Procedure ④

Draft EIS

Project proponent will execute survey, forecast, and evaluation, and make Draft EIS Document based on the assessment result.

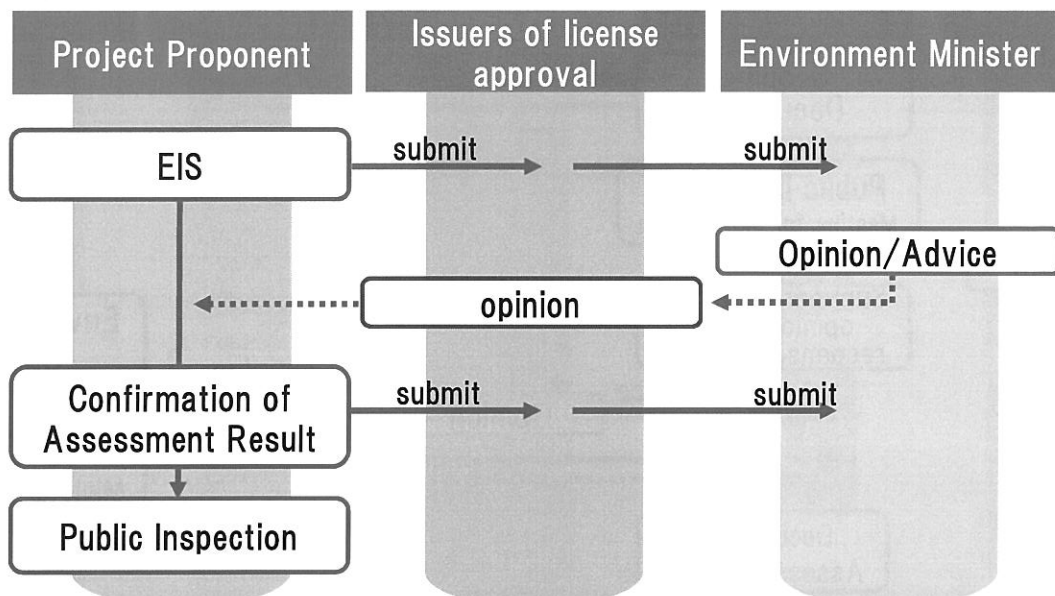


11

Procedure ⑤

EIS

Project Proponent should revise the draft EIS based on the opinion by Issuers of license approved and make EIS Document.

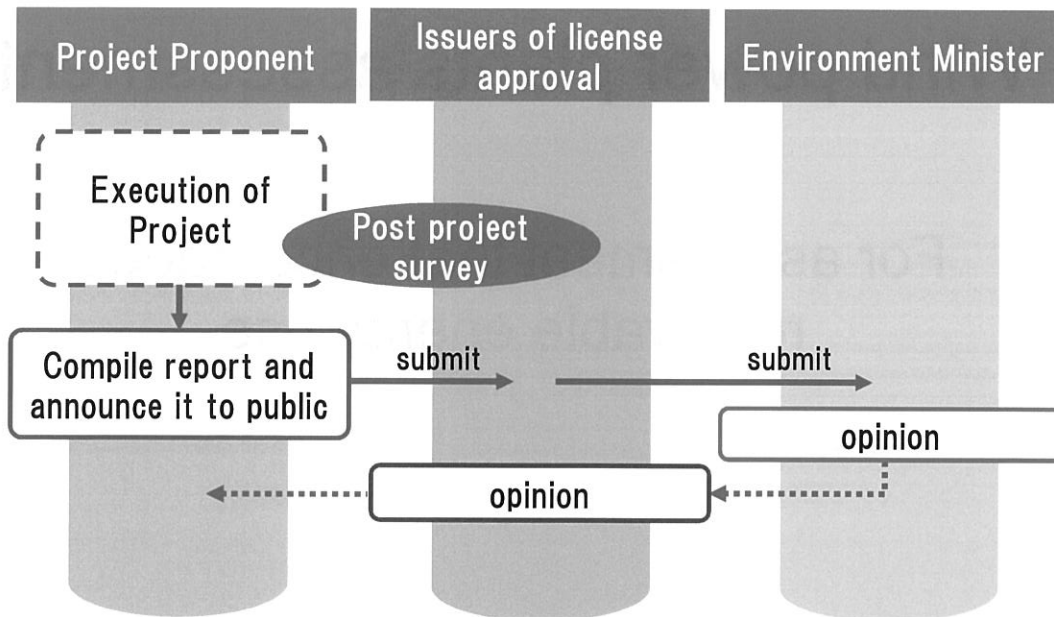


12

Procedure ⑥

Report

Project Proponent should compile report after the construction if there are uncertainty for some environmental aspect in their EIS Document.

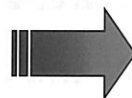


13

Idea of "Assessment" under the Environmental Impact Assessment Law

was took effect in 1997

○ Target clearance type assessment
Whether the fixed targets will be attained or not (yes or no) (E.g., Whether the noise environmental standards will be attained or not)



◎ Best-effort pursuit type assessment
From the viewpoint of reducing environmental load as much as possible within a practical range
(E.g., Aim at much quieter environment than the environmental standards)

Evaluate whether it is possible to avoid and reduce impacts to the environment as much as possible

- Compare and examine multiple proposals
- Have feasible, much better technologies been adopted?

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Wind power plants assessment

For assessment that encourages
renewable energy use

15

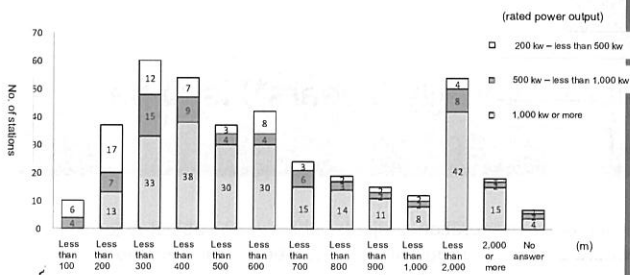
EIA on Power Plants in Japan

	Class-1 Projects	Class-2 Projects
Hydraulic Power	30 MW and over	22.5 MW – 30 MW
Thermal Power	150 MW and over	112.5 MW – 150 MW
Geothermal Power	10 MW and over	7.5 MW – 10 MW
Nuclear Power	(All)	---
Wind Power	Since Oct. 2012 10 MW and over	7.5 MW – 10 MW

Major impacts on environment by wind power plants (1/2)

Noise and low-frequency sound

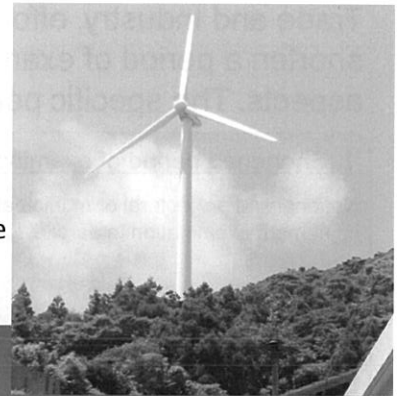
- ▶ Complaints at 64 wind power stations
- ▶ Stations with complaints by total power output (600 m or less to the nearest complainer):
 - 5,000-10,000 kW: 27% of stations
 - 10,000-15,000 kW: 38% of stations
 - 15,000-20,000 kW: 44% of stations
 - 20,000-30,000 kW: 69% of stations
- ▶ Distance to the nearest residence:
 - Less than 300 m: 107 (28%)
 - 300-500 m: 91 (23%)
 - 500-1,000 m: 112 (29%)
 - 1,000 m or more: 72 (19%)



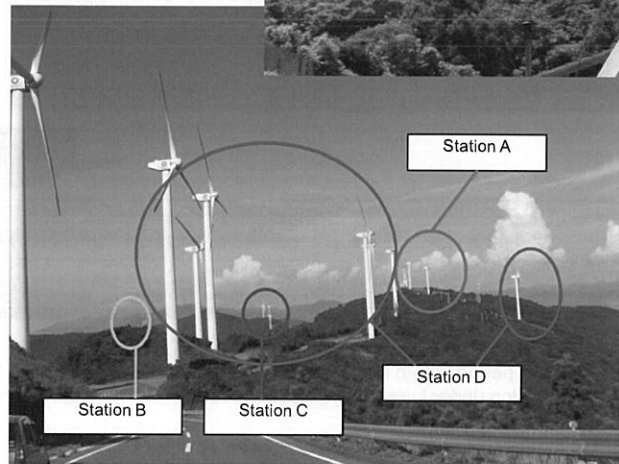
Source: the Ministry of the Environment

Landscape

A wind power station from a neighboring residence (right)



Many stations can be seen in a landscape (below)



Source: the Ministry of the Environment (Both at Cape Sata, Ehime)

Major impacts on environment by wind power plants (2/2)

Change of land (impacts on ecological system including animals and plants, colored water)



Concerns of impacts on natural environment and sediment runoff due to wind power generators on ridge and construction roads

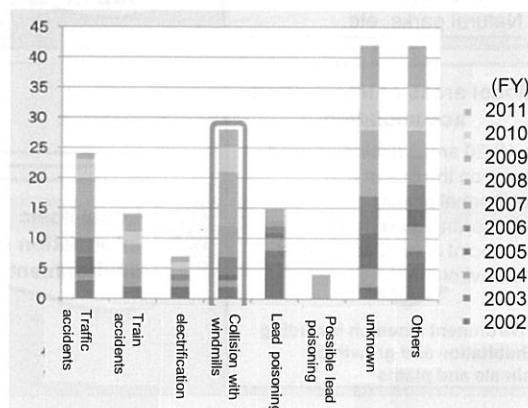
Source: website about the wind power station

Bird strikes

The identified No. 1 reason of injury of white-tailed sea eagles* in Hokkaido is collision with windmills



Source: the Ministry of the Environment

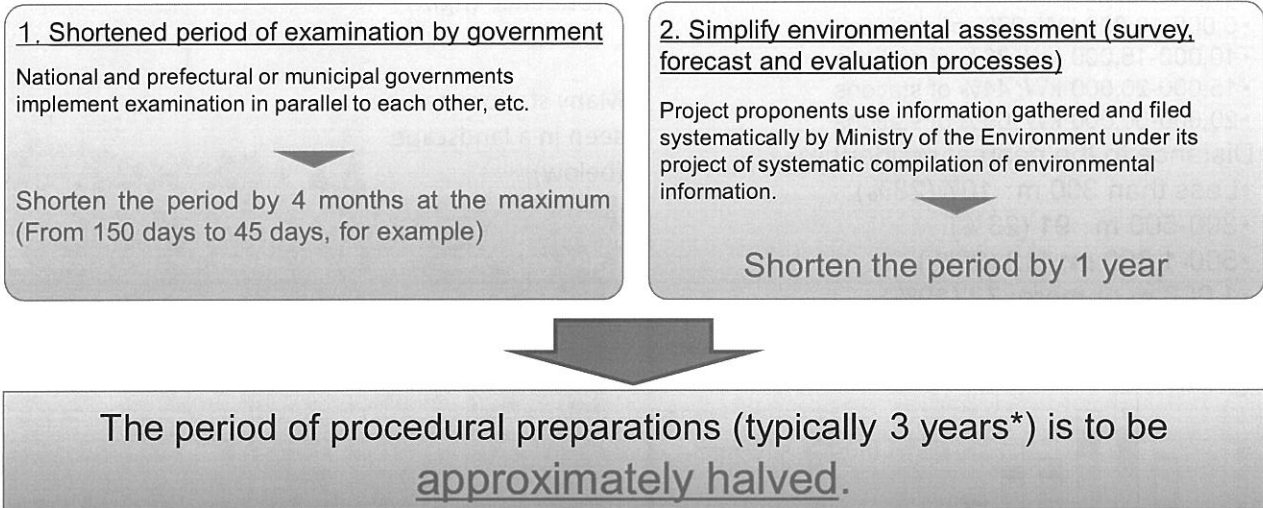


Source: the Ministry of the Environment (March 2012)

*White-tailed sea eagles are "vulnerable" (the 4th red list of the Ministry of the Environment), "designated nationally endangered species" (Act for the Conservation of Endangered Species of Wild Fauna and Flora), and natural treasure (Cultural Asset Preservation Act)

Speedy environmental assessment relating to wind power

○ In cooperation between Ministry of the Environment and Ministry of Economy, Trade and Industry, efforts have been made at the national government level to shorten a period of examination of environmental assessment in operational aspects. The specific policy thereof was crafted in late November, 2012.



* Average period length for thermal power generation projects. As for wind power generation projects, which were subjected to supervision under laws from October 2012, there is no example yet where procedural preparations have been completed thoroughly based on the laws.

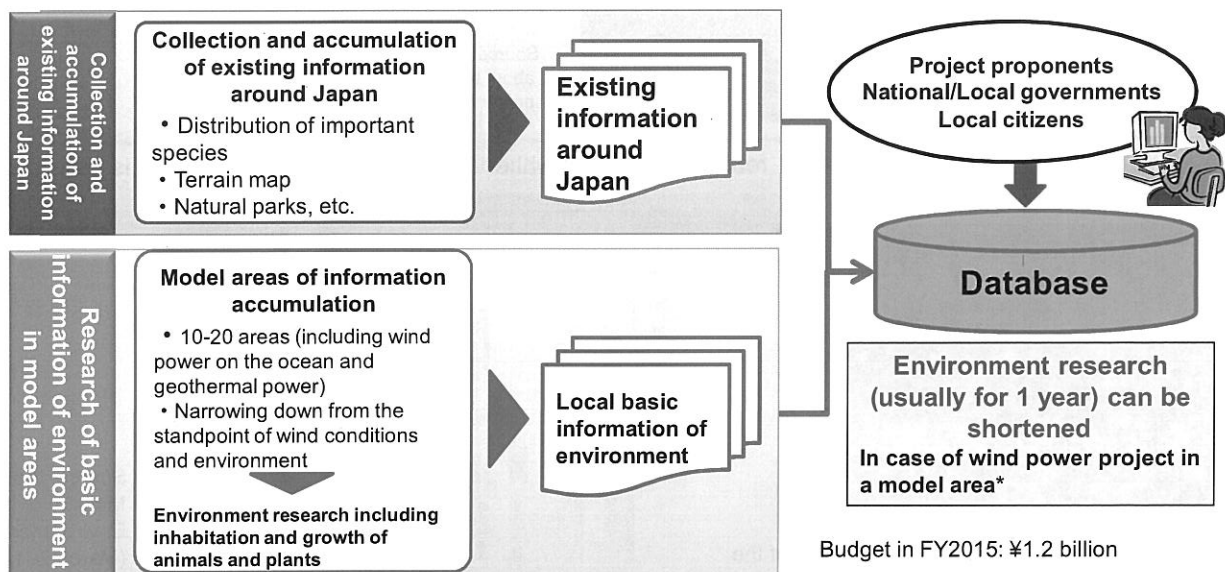
* With respect to the use of documents for environmental consideration, which was prescribed on April 1, 2013, efforts will be made to shorten the period of procedural preparations similarly to documents relating to method, preparation and evaluation.

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Simplification of environmental assessment (concerning wind power and geothermal power)

Outline of the basic information model project of environmental assessment (since FY2012)

- Ministry of the Environment collects and accumulates basic information about environment to effectively implement environmental assessment at a high level of quality.
- By providing this information to project proponents, the shortening of environment research and reduction of research cost are expected in environmental assessment.
⇒ expansion of model areas, introduction of open recruitment from local governments



*Ministry of Economy, Trade and Industry will reorganize knowledge of research methods for the advance implementation of environmental assessment based on
Intermediate Report of the Liaison Committee on acceleration of environmental assessment in case of establishment of power generation plants

Research points of basic information of environment in model areas for information accumulation

Selected in 2012		Selected in 2013		Additionally selected in 2013		Selected in 2014		Additionally selected in 2014		Selected in 2015	
Prefecture	Municipality	Prefecture	Municipality	Prefecture	Municipality	Prefecture	Municipality	Prefecture	Municipality	Prefecture	Municipality
Hokkaido	Kaminokuni	Hokkaido	Yakumo	Hokkaido	Wakkanai			Hokkaido	Yakumo	Iwate	Jobojimachi, Ninohe
Aomori	Aomori	Hokkaido	Shimamaki	Iwate	Fudai & Noda	Hokkaido	Niseko	Aomori	Kanakicho, Goshogawara	Iwate	Nisatai, ninohe
	Yokohama	Aomori	Takko	Iwate	Hirono	Hokkaido	Iwanai	Aomori	Manotake, Goshogawara	Fukushima	Goreibitsutoge, Koriyama
Iwate	Hirono	Iwate	Hirono	Akita	Akita & Katagami	Hokkaido	Sutto	Aomori	Hachinohe	Fukushima	Suwatoge, Koriyama
Akita	Yurihonjo		Yurihonjo	Akita	South	Aomori	Sutto	Iwate	Oshu	Fukushima	Koriyama & Sukagawa
Yamagata	Oguni		Daisen	Akita	North	Akita	Noshiro		Kugi	Kyoto	Ine
Fukushima	Iwaki		Noshiro	Fukushima	Iwaki	Fukushima	Minamisoma	Hyogo	Tanenochi, toyooka	Tottori	Tottori
Fukui	Obama		Yuzawa	Fukushima	Furudono	Ishikawa	Wajima	Hyogo	Tantocho, toyooka	Shimane	Asayama, Ota
Yamaguchi	Hagi		Tateyama	Fukushima	Ten-ei	Shizuoka	Iwata	Shizuoka	Shinonsen	Shimane	Torii, Ota
Kagoshima	Akune		Kimitsu	Fukushima	Minamisoma & Iidate	Ehime	Yawatahama	Shizuoka	Makinohara	Tokushima	Naruto
9	10		Abu & Hagi	Shizuoka	Omaezaki	Kochi	Muroto	Hyogo	Sumoto	6	10
			Shimonoseki	Hyogo	Kamikawa	Fukuoka	Kitakyushu	Shimane	Izumo		
			Tobe & Uchiko	Tottori	Middle	Nagasaki	Shinkamigoto	Niigata	Murakami		
			Saikai	Yamaguchi	Hagi	Kagoshima	Satsumasendai	8	13		
			Ashikita	Fukuoka	Kitakyushu						
			Ibusuki	Nagasaki	Oushima, Goto						
		10	16	Kagoshima	Ishima, Nagasaki						
				Kagoshima	Kushikino						
				11	18						

Energy source	Research area
Wind power on shore	442 km ²
Wind power in the ocean	3,315 km ²
Geothermal power	4 km ²

Up to FY2015, research has been conducted at 81 points (58 WSs, 21 WOs, 2 Gs) in 23 prefectures

*including points currently under survey

Basic environmental information database system for EIA

1. Basic information GIS system
provide environmental information of model areas
2. Reference Search
search system of past EIS document
3. EIA Case Search
search system of past EIA case information
4. Reports List

Basic environmental information database system for Environmental Impact Assessment

環境アセスメント環境基礎情報データベースシステム

このサイトは、環境影響評価の準備に資する方針を対象として、立地ポテンシャルの豊富な自然環境の調査、調査の有効性を確保して適宜した情報整備モデル地区の環境情報、地域の既存環境情報、国内外の環境情報及び風力発電事業等に関する環境影響評価情報の提供を目的とする。

情報整備モデル地区環境情報

地域の既存環境調査結果、地共有調査のヒアリング調査結果、動植物・生態系等の調査結果を提供します。

※モデル地区とは、調査が完了したモデル地区を指します。

詳細はこちら

モデル地区を選ぶ

報告書を見る

地域既存環境情報

国や地方公共団体が所有する、環境影響評価に活用可能なと考えられる自然環境、社会環境を提供することができます。

※詳細については、あくまで概略であり、詳細な環境情報は、関係機関等に問い合わせください。

詳細はこちら

地図を見る

詳細を見る

参考文献検索

次の技術情報を検索・閲覧することができます。

- ・風力への影響に関する文献資料情報
- ・騒音・振動に関する文献資料情報
- ・国内外における風力・地熱等の情報

環境影響評価事例検索

調査内容、法令制度等の条件に基づいた風力発電事業等に関する環境影響評価事例の検索・閲覧ができます。なお、風力発電事業等を目的としたアセスメントは、「環境影響評価情報連携ネットワーク（環境省）」を参照してください。





The Zoning Project for Wind Power Plant initiated by regional communities

Budget in FY 2015
¥ 158 million

Background and Purpose

- Designing and Planning of wind power plants conducted by project proponents has tended to lag behind originally scheduled due to;
 - coordination with incumbent proponents, and
 - procedures required for regulations concerned.
- Thus, necessary to ease the burden of the proponent related to Environmental Impact Assessment procedure (post "Scoping"), by both forgoing EIA procedures and zoning initiated by regional communities in a blanket manner .
- Aiming at compressing the time span (planning to groundbreaking) in average, 5 -7 years, to 3 years at maximum, by establishing the zoning method.

Abstract

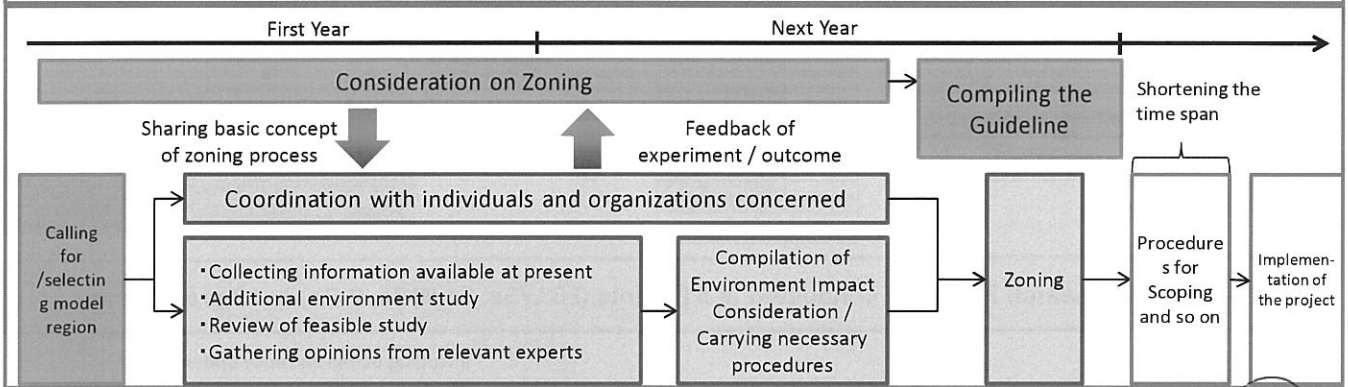
- next yr*
- 1) Establishing the method for the strategic zoning
Compiling a Guideline for the Zoning Project for Wind Power initiated by regional communities focusing on;
 - limitation by attributes of the project / the region
 - reconciliation method for stakeholders/ inhabitants
 - good practices of carrying EIA procedure
 - 2) Demonstration project in selected model regions
Calling for local municipalities that are proactive in inviting to set up Wind Power stations. The project consists of;
 - coordinating with individuals / organizations concerned
 - collecting information available at present, and
 - reviewing feasible studies
 in the model regions. (3 regions incl. onshore, offshore)

Project scheme

- Expected players: local municipality or private entity
- Term for the project: FY2015 – FY2016

Expected outcome

- Both mitigating risks associated with a project and environmental consideration in early stage
- Encouraging to establish bases for supply of renewable energy
- Realization of actual case of Strategic Environment Assessment



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Model regions of the Zoning Project for Wind Power Plant initiated by regional communities

