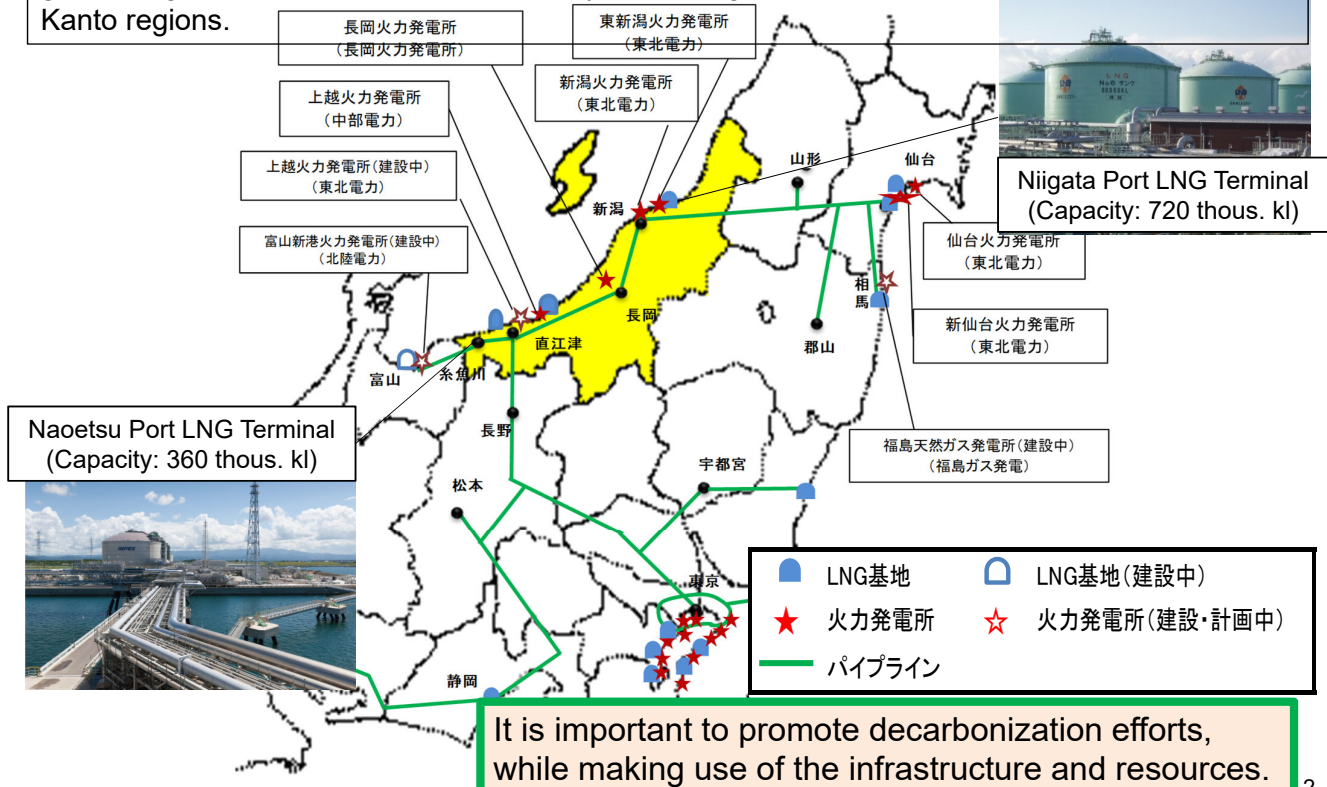


LNG terminals and gas pipeline networks to supply to Tohoku & Kanto regions

Ports of Niigata and Naoetsu have LNG terminals, playing a significant role to supply natural gas through the pipeline networks, not only within Niigata prefecture, but also to Tohoku and Kanto regions.



Niigata Pref. is a Key Power Generating Center

- Of the total amount of electricity generated in the prefecture in FY 2019, 83.7% was generated by thermal power and 16.3% by renewable energy (most of which was hydroelectric power).
- In FY 2019, the prefecture generated about three times as much electricity as its demand, and supplied to other regions including the Tokyo Metropolitan Area, Tohoku, etc.

Source: 新潟県の電力概況 [thous. kWh]

● Electricity Generated in Niigata in 2019

	Renewables				Thermal B	Nuclear C	Total A+B+C
	Hydro	Solar	Wind	Sub total A			
Generation	7,367,625	198,874	38,960	7,605,459	39,129,056	0	46,734,515
(Share)	(15.8%)	(0.4%)	(0.1%)	(16.3%)	(83.7%)	(0.0%)	(100.0%)
YoY change	103.0%	118.9%	96.5%	103.3%	94.5%	—	95.8%

● Power Generation & Consumption (FY2019)

[mil. kWh]

	Generation	Consumption
Japan Total	970,771	836,038
Niigata Pref.	46,735	16,353
Share[%]	4.8	2.0

Renewable Energy in Niigata

- In terms of renewable energy equipment installed under the Feed-in Tariff (FIT) system (including equipment not owned by electric utilities, i.e. households and businesses), Niigata prefecture ranks 42nd in Japan due to the slow progress in the installation of solar power, which accounts for the majority of renewable energy equipment nationwide.
- On the other hand, the amount of electricity generated by electric utilities from renewable and new energy sources (including non-FIT sources) accounts for 6.6% of the national total and ranks 6th in Japan, due to the hydropower, which stably generates electricity.

● 固定価格買取制度による再エネ発電設備の導入状況 (令和3年3月現在)

(KW)

	太陽光	風力	水力	地熱	バイオマス	合計
全国	60,942,158	4,489,059	929,681	92,322	4,071,192	70,524,411
新潟県	351,592	27,512	75,890	0	24,602	479,597
(全国割合)	0.6%	0.6%	8.2%	-	0.6%	0.7%
(順位)	42位	28位	4位	-	35位	42位

資エネ庁「固定価格買取制度 情報公表用ウェブサイト」より
 ※ バイオマスには廃棄物等も含まれる

● 発電事業者による再エネ・新エネの発電実績 (令和2年度)

(千KWh)

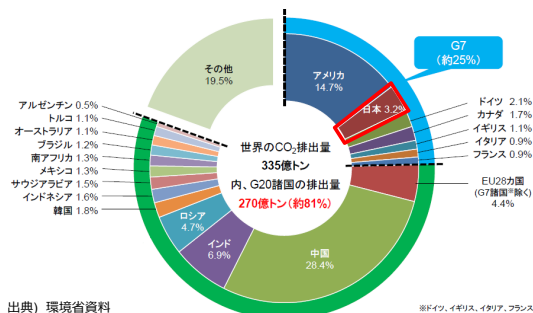
	太陽光	風力	水力	地熱	バイオマス	廃棄物	合計
全国	16,187,707	7,594,175	84,492,811	1,987,423	19,122,086	3,752,301	845,412,130
新潟県	140,389	31,561	7,070,105	-	234,483	-	7,242,055
(全国割合)	0.9%	0.4%	8.4%	-	1.2%	-	6.6%
(順位)	29位	29位	4位	-	18位	-	6位

資エネ庁「電力統計調査」より

GHG Emissions in the World, Japan, and Niigata

World (2018)

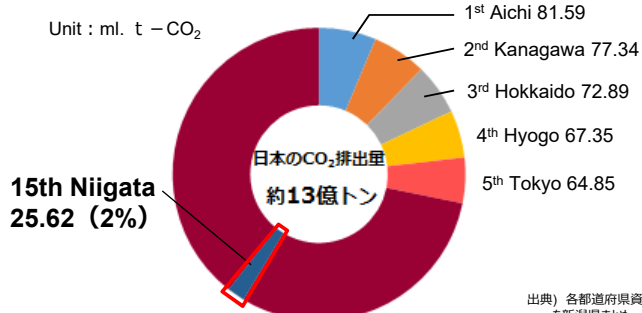
33.5 bl. ton (CO₂)



Japan's share in the World CO₂ emissions:
3.2% (5th largest)

Japan (2017)

1.3 bl. ton (CO₂)

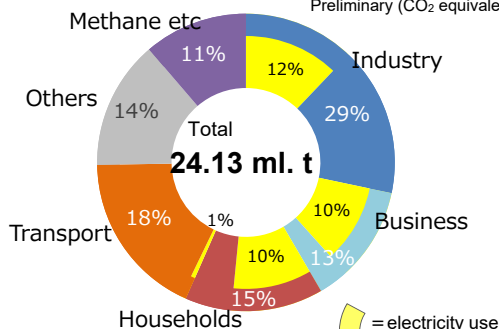


Niigata's share in the Japan's CO₂ emissions:
2.0% (15th largest)

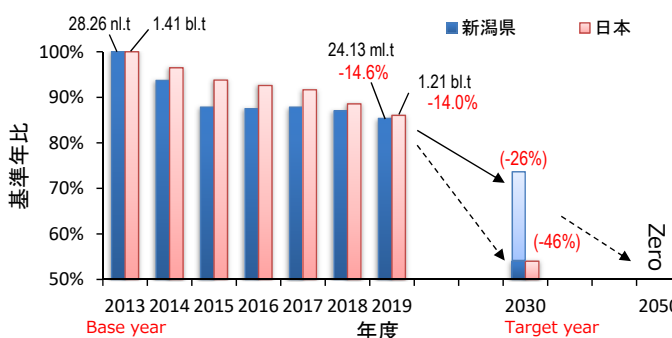
Niigata (2019)

24.13 ml. ton

Preliminary (CO₂ equivalent)



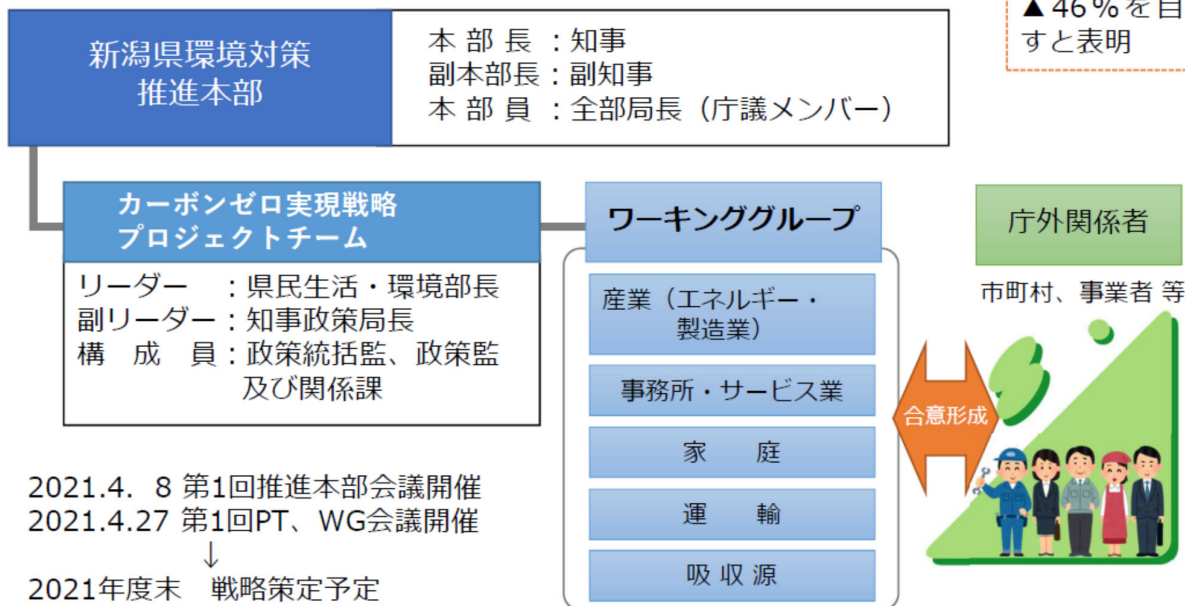
Dynamics in Japan and Niigata



温室効果ガス排出量実質ゼロに向けて～県の体制

- ✓ 環境対策推進本部の下にカーボンゼロ実現戦略プロジェクトチームを新設
- ✓ 脱炭素社会実現に向けて・・・
 - テーマ毎に本県の特長や課題を踏まえた戦略の検討
 - 現行の2030年度目標（2013年度比▲26%）の見直しの検討

2021年4月
国は2030年度
に2013年度比
▲46%を目指
すと表明



Jun. 9, 2021

令和3年度市町村エネルギー担当者会議 **県全体で脱炭素社会を構築**

Policy Directions of Niigata Prefecture

<p>Strategy toward 2050</p> <p>Formulate practical strategies to realize a green society</p>	<p>RE & Hydrogen</p> <p>Expand the use of renewable energy and hydrogen by utilizing local resources such as offshore wind power.</p>	<p>Energy/Resource Conservations</p> <p>Enterprises</p> <p>“Frontier Enterprise Support Fund” (loan for decarbonization projects)</p>
<p>Innovations</p> <p>Promote new entry into decarbonization businesses, such as hydrogen utilization</p>	<p>Carbon Sink</p> <p>Promote and expand the Niigata Prefecture carbon offset system</p>	<p>Households</p> <p>“2050 Niigata Zero Carbon Challenge” program</p>

Supplementary budget (Sept. 2021)

Start/accelerate efforts to shift to a decarbonized society

- Surveys for the selection of pilot decarbonized regions
- Promotion of introduction of electric vehicles in remote islands
- Studies on the introduction of small-scale hydropower and promotion of the use of broadleaf trees as a CO₂ sink

KPI on Renewable Energy in the Comprehensive Plan of Niigata Pref.

- The ratio of electricity generated from renewable energy sources to electricity demand in the prefecture has been adopted as an indicator of how much of the prefecture's annual electricity demand can be covered by renewable energy sources.
- The goal to be achieved by increasing the numerator through the promotion of RE-based generation and reducing the denominator through the promotion of energy conservation and the use of RE-based heat.

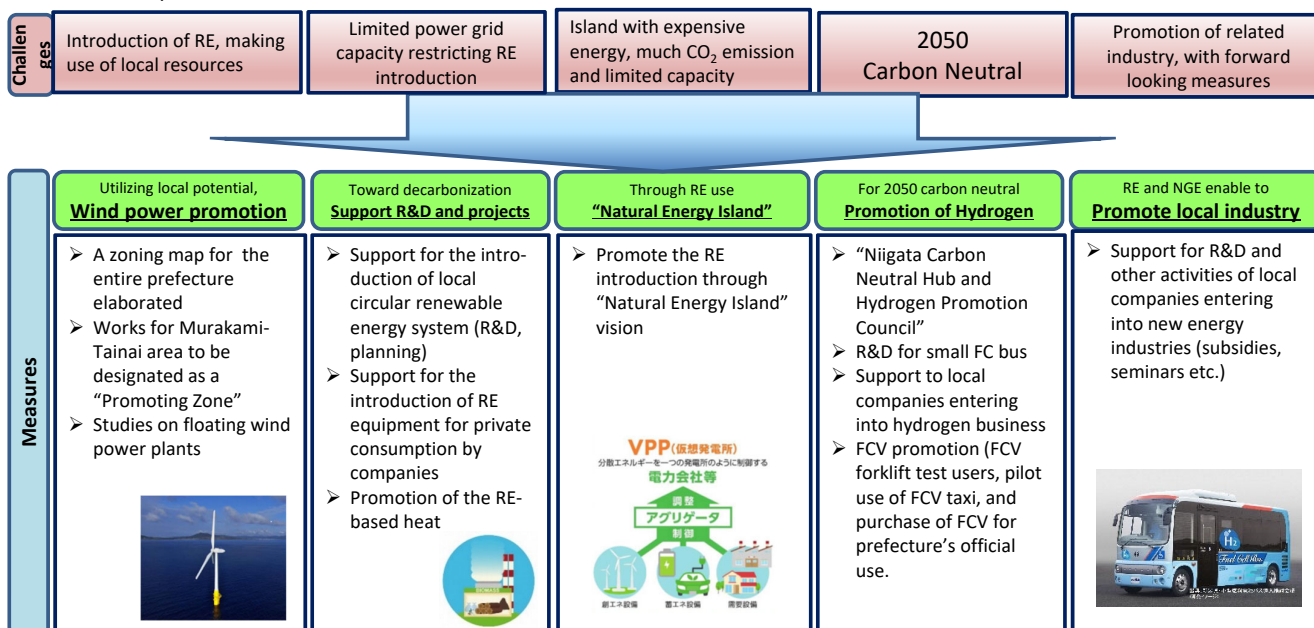
Title	Current	Interim Target (FY2020)	Final Target (FY2024)
Ratio of electricity generated from renewable energy sources to electricity demand	44.9% (avg. for FY2018-19)	46% (avg. for FY2019-20)	52% (avg. for 2023-24)

[ml. kWh]		
	Avg. for FY2018-19	
RE-based Electricity (a)*	7,472,289	up Promotion of RE-based generation
Electricity Demand (b)	16,637,815	down Promotion of energy conservation/use of RE-based heat
a/b	44.9%	

*Excluding pumped storage power generation

Promotion of Renewable and Next Generation Energy

By promoting the introduction of renewable energy taking advantage of the unique characteristics and local resources of the prefecture, and by providing support and improving the environment for companies in the prefecture to enter the field of renewable and next-generation energy, we aim to expand the range of future energy choices and promote the entry of the local companies into related industries.

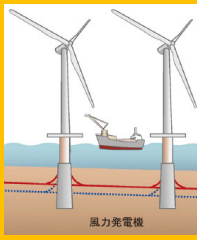



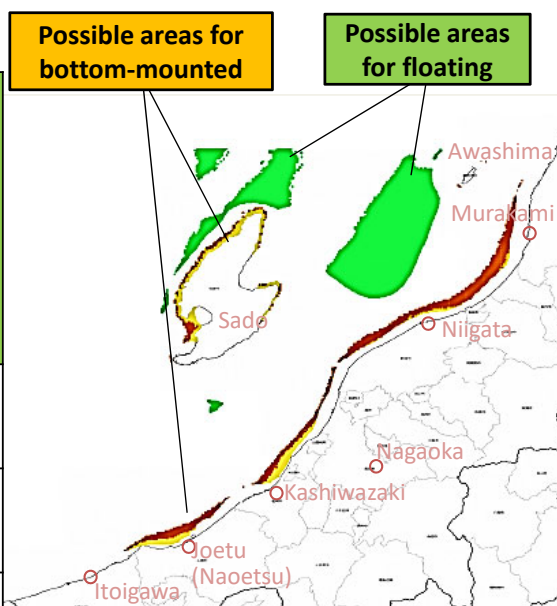
Potential for Offshore Wind Power Generation in Niigata

- The Japanese government has identified the extensive introduction of offshore wind power as essential to achieving carbon neutrality.
- In FY 2016, the prefecture conducted a survey of the potential for offshore wind power, and prepared a "potential map" that identifies the wind speed, as well as various constraints.
- Identified areas with potential for offshore wind power as below.

[Survey results]

Possible areas for offshore wind power and their potential

	Bottom-mounted	Floating
		
Criteria*	Yearly avg. wind speed: 6.5m/s & more Depth: 50m or less	Yearly avg. wind speed: 8.0m/s & more Depth: 50m - 200m
Areas	• Jo-Chu-Kaetsu shore • Oh-sado shore	• Between Sado and Awashima • Oh-sado offshore
Size	615km ²	1,379km ²
Potential**	16,612GWh/y	52,261GWh/y
	68,873GWh/y	



* Without consideration on constraints, such as conflicts with fishing rights
** In case of large-scale turbine (8MW)

10

Waters off Murakami and Tainai Cities Selected as a "Promising Area" by the Japanese Government

- In Sept. 2021, Waters off Murakami and Tainai cities selected by the government as a "Promising Areas" to be further designated as a promotion area.
- The national and prefectural governments will set up a legal council to discuss consensus building with local cities and stakeholders.

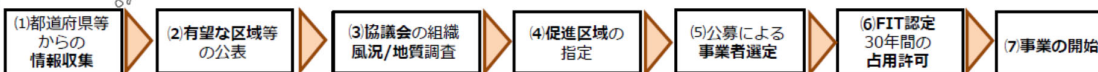
- 2019年7月、以下の①～④の4区域を「有望な区域」として整理。その後、「促進区域」に指定（①2019年12月、その他は2020年7月）。さらに、①は2020年12月に公募を終了し、公募占用計画の審査を経て、2021年6月に事業者を選定。②～④は、提出された公募占用計画を審査中。
- 2020年7月、以下の⑤～⑧の4区域を「有望な区域」として整理。その後、各区域における協議会の進捗、促進区域指定基準への適合状況や都道府県からの情報提供を踏まえ、**2021年9月13日**、⑤を「促進区域」に指定するとともに、⑨～⑫の4区域を新たに「有望な区域」として追加・整理。



< 促進区域、有望な区域等の指定・整理状況（2021年9月13日） >

区域名	万kW											
①長崎県五島市沖	1.7	<table border="1"> <tr> <td>⑬北海道檜山沖</td> </tr> <tr> <td>⑭北海道岩手・南後志地区沖</td> </tr> <tr> <td>⑮青森県陸奥湾</td> </tr> <tr> <td>⑯北海道島牧沖</td> </tr> <tr> <td>⑰北海道松前沖</td> </tr> <tr> <td>⑱北海道石狩市沖</td> </tr> <tr> <td>⑲岩手県久慈市沖（浮体）</td> </tr> <tr> <td>⑳福井県あわら市沖</td> </tr> <tr> <td>㉑福岡県響灘沖</td> </tr> <tr> <td>㉒佐賀県唐津市沖</td> </tr> </table>	⑬北海道檜山沖	⑭北海道岩手・南後志地区沖	⑮青森県陸奥湾	⑯北海道島牧沖	⑰北海道松前沖	⑱北海道石狩市沖	⑲岩手県久慈市沖（浮体）	⑳福井県あわら市沖	㉑福岡県響灘沖	㉒佐賀県唐津市沖
⑬北海道檜山沖												
⑭北海道岩手・南後志地区沖												
⑮青森県陸奥湾												
⑯北海道島牧沖												
⑰北海道松前沖												
⑱北海道石狩市沖												
⑲岩手県久慈市沖（浮体）												
⑳福井県あわら市沖												
㉑福岡県響灘沖												
㉒佐賀県唐津市沖												
②秋田県能代市・三種町・男鹿市沖	41.5											
③秋田県由利本荘市沖（北側・南側）	73											
④千葉県銚子市沖	19,37											
⑤秋田県八幡町・能代市沖	36											
⑥長崎県西海市江島沖	30											
⑦青森県沖日本海（南側）	60											
⑧青森県沖日本海（北側）	30											
⑨秋田県男鹿市・湯上市・秋田市沖	21											
⑩山形県遊佐町沖	45											
⑪新潟県村上市・胎内市沖	35,70											
⑫千葉県いすみ市沖	41											

プロセス

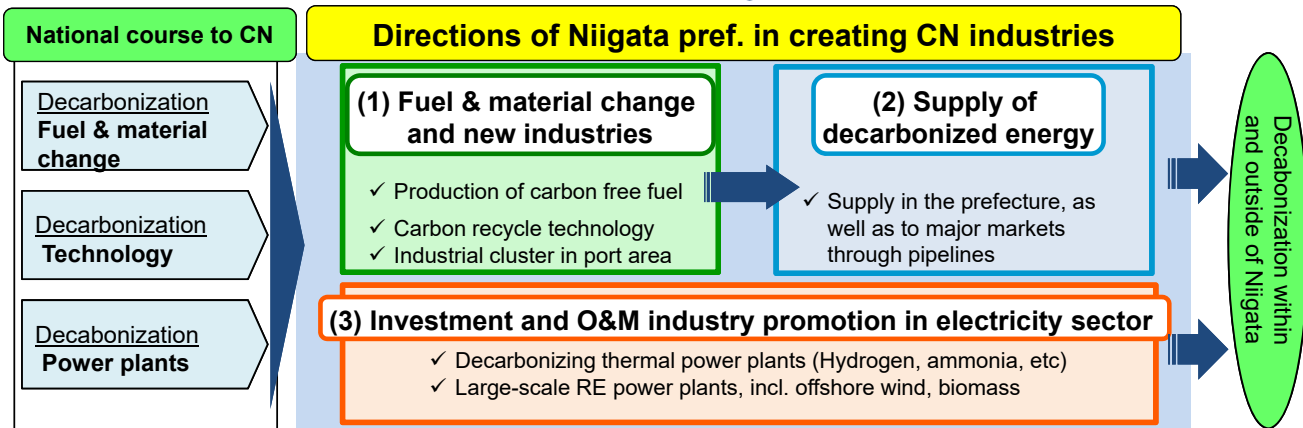


“Vision for Carbon Neutral Industries of Niigata”

Utilizing Niigata Prefecture's unique resources and technological seeds, to promote **investment for development** and **creation of new industries** in Niigata Prefecture **in three carbon-neutral (CN) industrial fields**.

Niigata Prefecture's unique resources and technological seeds

- Methane-gas-related industries
- Carbon recycle technologies in the chemical industry
- Largest trade & energy port in the west coast of Honshu island
- Infrastructure, incl. gas pipeline network to major markets, such as the Tokyo metropolitan, Tohoku, Hokuriku, KoShinSei areas.
- Existing power grids + further expansion



Future of Niigata's Carbon Neutral Industry at a Glance

Overall picture of the demonstration projects for realizing the creation of carbon-neutral industries in the three areas.



Recent Major Developments toward the Decarbonized Society

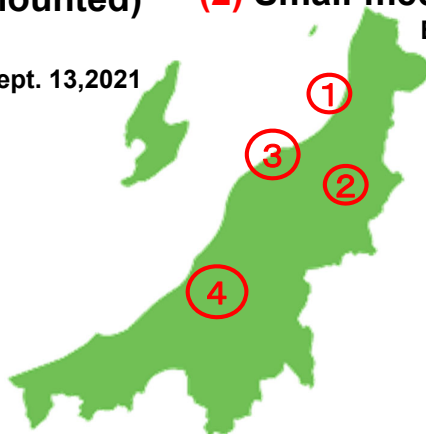
(1) Off-shore wind PP (bottom-mounted) in Murakami-Tainai off coast

In the "Promised Area" by government on Sept. 13,2021



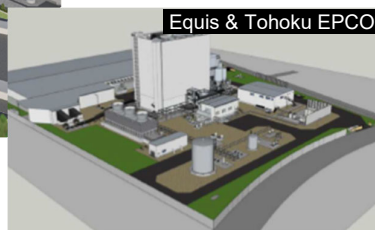
(2) Small-medium hydro-PP

By Taisei Rotec Corp.



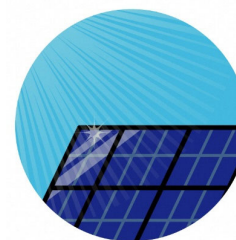
(3) Large biomass PP in Niigata East port

(by erex Co., Ltd.
by Equis Development Pte Ltd, Tohoku EPCO)



(4) CCUS & Hydrogen projects

By INPEX



Thank you for your kind attention!!

