

The image features the chemical formula CO<sub>2</sub> rendered in a white, fluffy, cloud-like font. The letters are thick and have a soft, irregular texture, making them appear as if they are made of or composed of clouds. The background is a clear, vibrant blue sky with scattered, lighter blue clouds, creating a clean and modern aesthetic.

Projects in Pipeline

**Dangjin Membrane CCUS Plant**

# Dangjin Membrane CCUS Plant: 1MW

<b>Project Name</b>	<b>Next-generation CO<sub>2</sub> separation membrane commercial technology</b>
<b>Participating organizations</b>	Korea Electric Power Corporation (organization), Arstroma, Korea East-West Power, Korea South-East Power, Korea Western Power (total of 5 companies)
<b>Project period</b>	Total 3 years, 2016. 5. 1 ~ 2019. 4. 30
<b>R&amp;D cost</b>	Total 17,953,020,000 won (cash, investment in-kind)
<b>Location</b>	Korea East-West Power Dangjin Thermal Power Headquarters Unit 5
<b>Project goals</b>	<ol style="list-style-type: none"> <li>1. CO<sub>2</sub> capture rate 90%</li> <li>2. CO<sub>2</sub> capture concentration 96%</li> <li>3. Daily CO<sub>2</sub> capture: 20 tons</li> </ol>

## Roles:

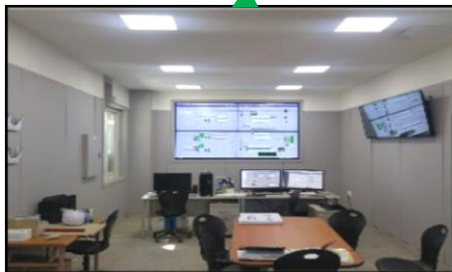
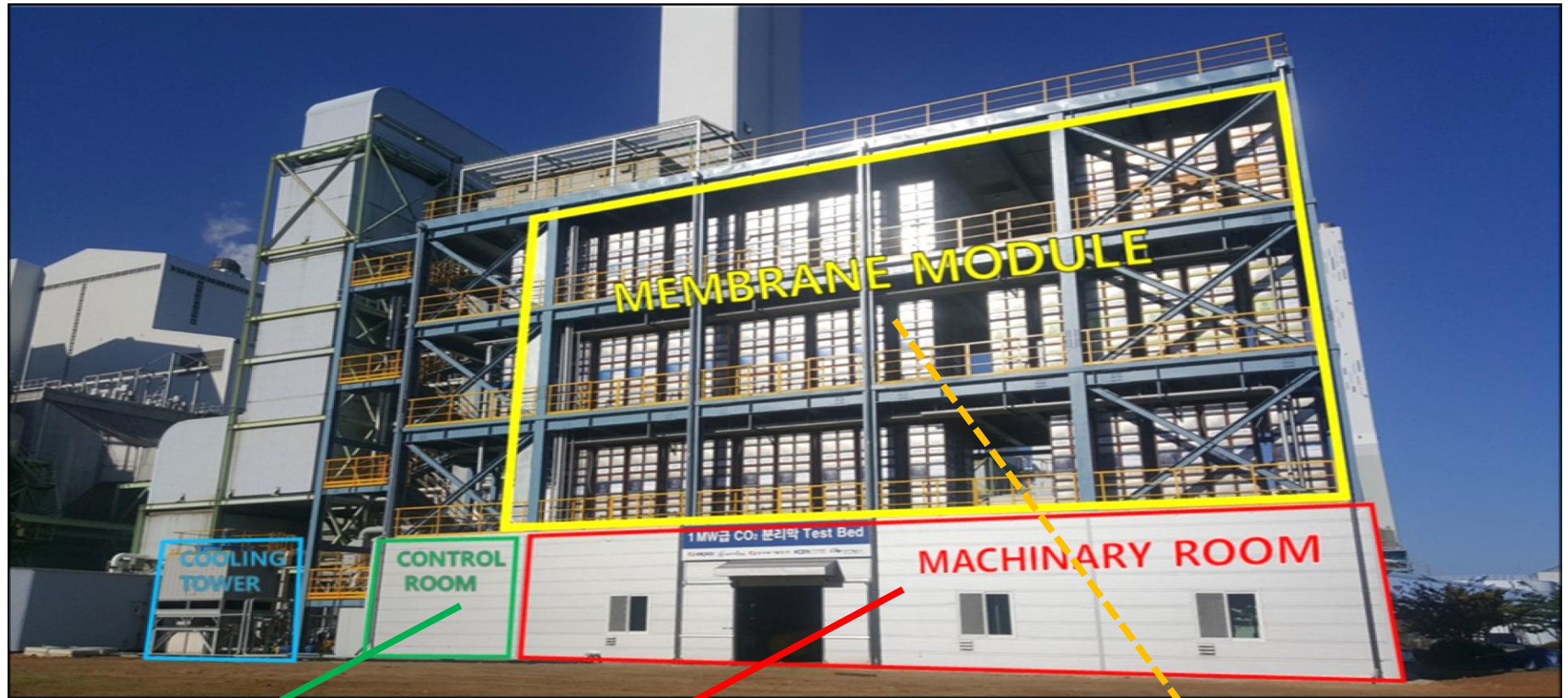
<b>KEPCO</b>	Systematize membrane and module performance evaluation methods and procedures
<b>Power Plant</b>	Power plant exhaust gas supply and site infrastructure provision
<b>Arstroma</b>	<ul style="list-style-type: none"> <li>• Separator manufacturing/module manufacturing/construction and construction by improving the separation membrane's original technology</li> <li>• Prove the reliability of the technology through a series of technology demonstrations</li> </ul>

# Dangjin Membrane CCUS Plant





# Dangjin Membrane CCUS Plant



# Report: Arstroma's Membrane CCUS System

- 1MW Dangjin Power Plant
- Arstroma's Next-generation CO<sub>2</sub> separation membrane commercial technology development final report - KEPCO Electric Power Research Institute 2020.4.30 Issue

Performance Goals	KPI	Current level	Target level	KPI Measurement evaluation method
	CO <sub>2</sub> Purity (%)	-	>96	1MW class test bed flue gas measurement
	CO <sub>2</sub> capture rate (%)	-	>90	
	Permeability (GUP)	1,153	>1,000	Membrane characteristic evaluation device

Subject	Contents
<b>Membrane material</b> <b>Membrane module</b>	<ul style="list-style-type: none"> <li>• Polymer Intrinsic Membrane (Permeability 1153 GPU, Selectivity 10)                             <ul style="list-style-type: none"> <li>- Establishment of mass production system (quality error &lt; 3%)</li> </ul> </li> <li>• Compact Membrane Module (Membrane Density 400 m<sup>2</sup>/ m<sup>3</sup>)</li> </ul>
<b>1MW class test bed</b>	<ul style="list-style-type: none"> <li>• Test Bed construction (2017. 10), accumulated 1,750 hours of operation                             <ul style="list-style-type: none"> <li>- 96% purity, 90% collection rate</li> </ul> </li> <li>• Technology verification by the Philippine Ministry of Science and Technology (2018. 4, ETV-18-004)</li> </ul>
<b>Customized technology package</b>	<ul style="list-style-type: none"> <li>• Development of optimal design tools for each performance goal (purity, collection rate)</li> <li>• Securing economic feasibility by collection cost- Deriving customized design standards</li> </ul>