

Yeoomoon / KPGView

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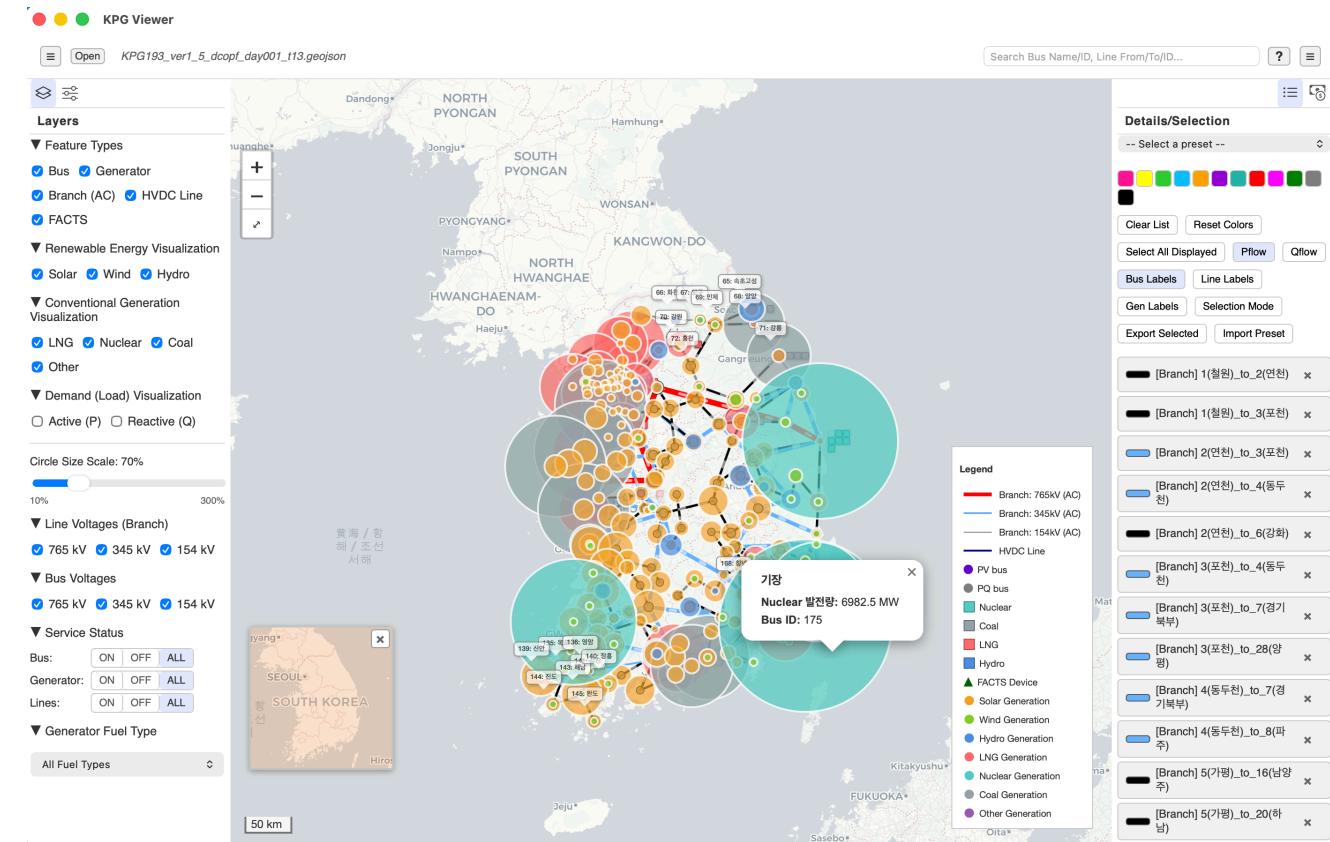
1 Branch 0 Tags

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Overview

KPG View is an interactive visualization tool for exploring power-grid simulation results on a map. It helps you quickly understand *where* key behaviors happen in the network (flows, voltage levels, generator locations, load hotspots) and to compare scenarios by turning layers on/off, filtering, and highlighting components.



Key capabilities:

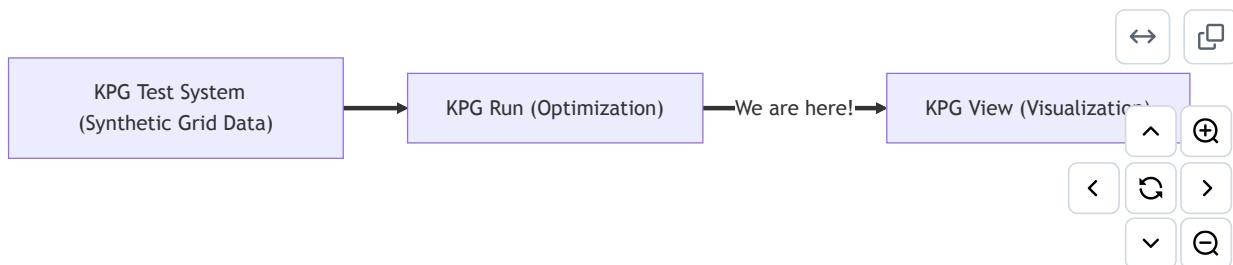
- Layer-based visualization:** Bus / Generator / Branch (AC) / HVDC / FACTS
- System overlays:** renewable & conventional generation, system load (P/Q), and line flows (Pflow/Qflow)
- Filtering & focus:** voltage level (e.g., 765/345/154 kV), service status (ON/OFF), generator fuel type
- Selection workflow:** search by bus/line IDs, highlight with colors, label buses/lines/generators
- Shareable analysis:** presets and export of selected elements for reports and follow-up studies

Usage Guide

Getting Started

KPG View is part of the Korea Power Grid (KPG) Platform. In a typical workflow, (1) load a synthetic grid model, (2) run an optimization in KPG Run, and (3) explore/compare the outputs in KPG View.

Three Core Modules



Install

- Download the latest release from [website](#) and install the app (e.g., .dmg on macOS).

- Launch KPG View.

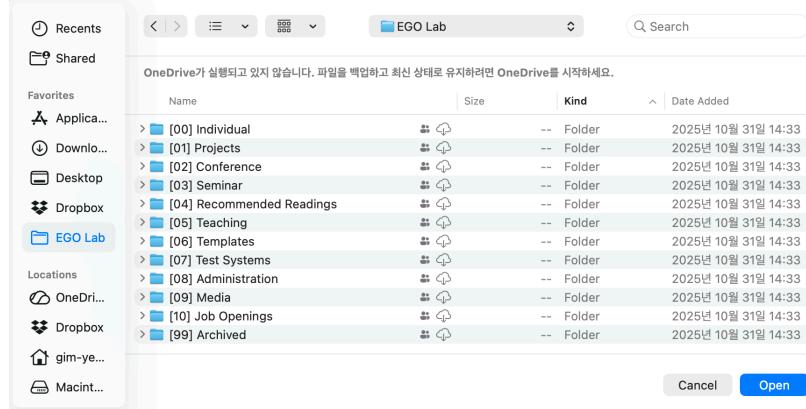
Open a result file

1. Click **Open** (top-left) and select a result file (e.g., *.geojson).
2. Use the left **Layers** panel to turn on/off Bus/Generator/Branch/HVDC/FACTS.
3. Use the right **Details/Selection** panel to switch **Pflow/Qflow**, enable labels, and export selected components.

UI Tour

1. Top Left Bar

- **Open:** click to select a result file (e.g., *.geojson).
- For time-series results, the app may ask you to select a **results folder** to load time-series data.
- The currently loaded file name is shown next to the **Open** button.



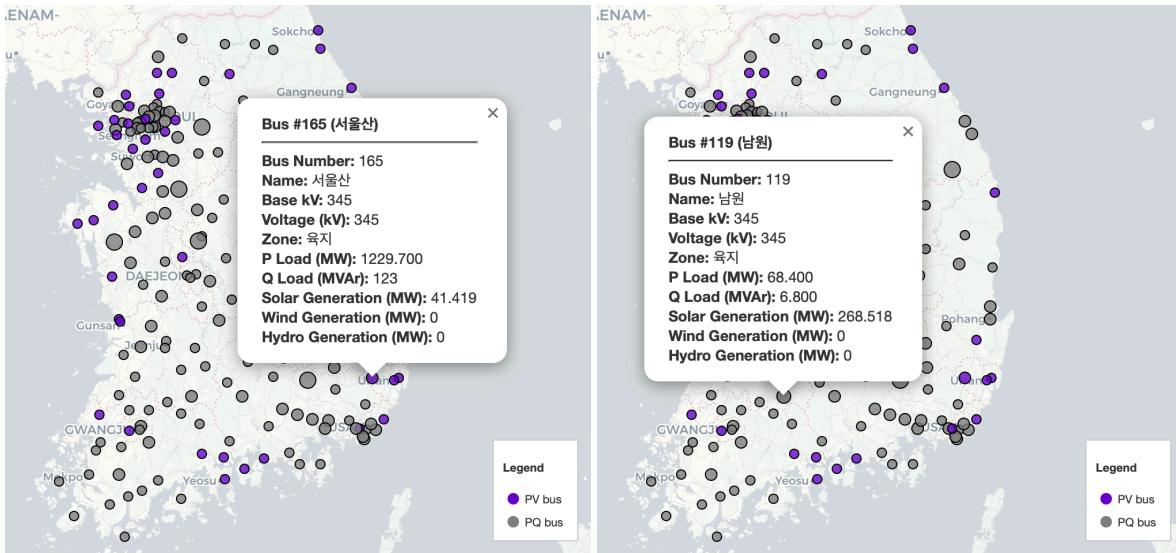
- **≡ Layers button:** toggles the **Layers** panel, where you configure what to display on the map.

2. Layers

Feature Types

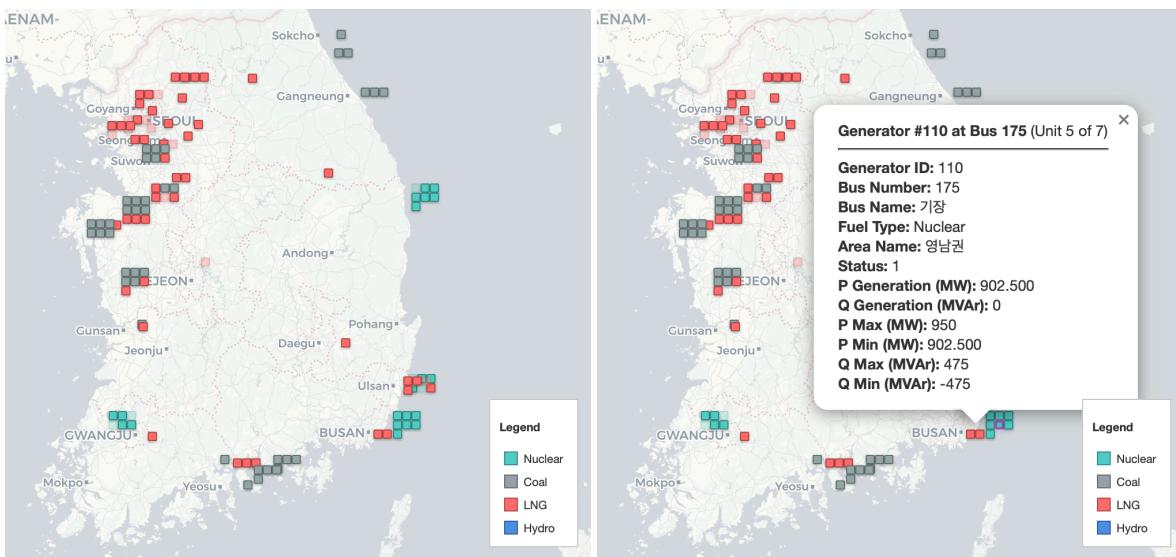
Bus

- Enable **Bus** to display bus locations on the map.
- Buses are categorized as **PV** or **PQ** buses (the legend is included in the screenshots below).
 - PV bus
 - PQ bus
- Click a bus marker to open an information popup.
 - bus ID/name
 - base kV
 - zone
 - load (P/Q)
 - renewable generation (solar/wind/hydro) (when available)



Generator

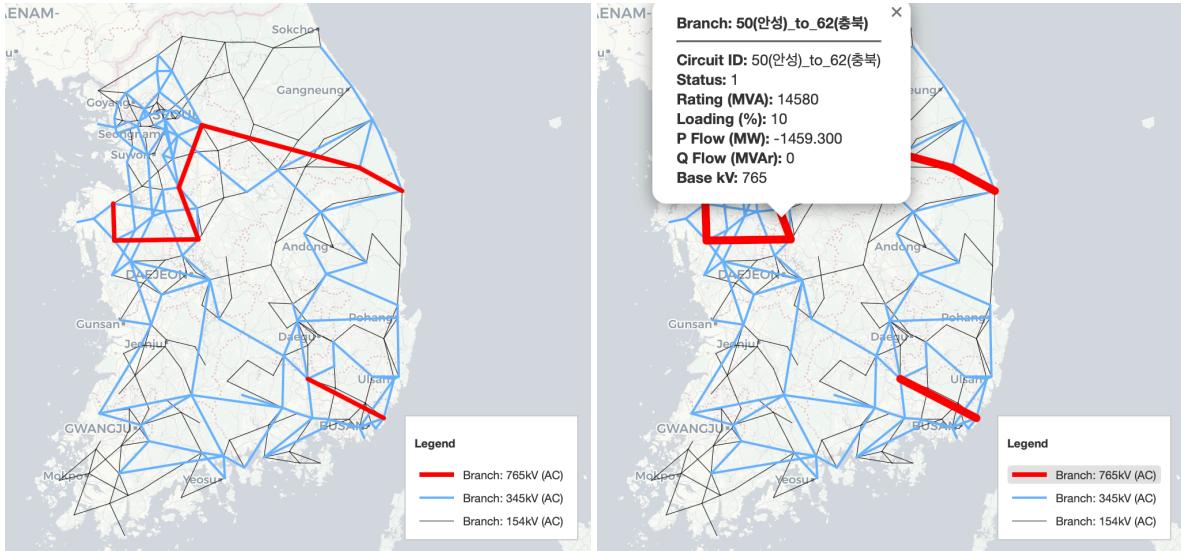
- Enable **Generator** to display generator units on the map (square markers).
- Each square represents a single generator **unit**. If you see a "stack" of squares at the same location, multiple units share the same bus/plant location (e.g., *Unit 5 of 7*).
- Fuel types (Nuclear/Coal/LNG/Hydro) are indicated in the **legend included in the screenshots**.
- A **transparent** marker indicates an **offline** unit (not committed / Status = 0). A solid marker indicates an **online** unit (Status = 1).
- Click a generator marker to open an information popup.
 - generator ID
 - bus number/name
 - fuel type
 - area
 - commitment status
 - P/Q generation
 - P/Q limits



Branch (AC)

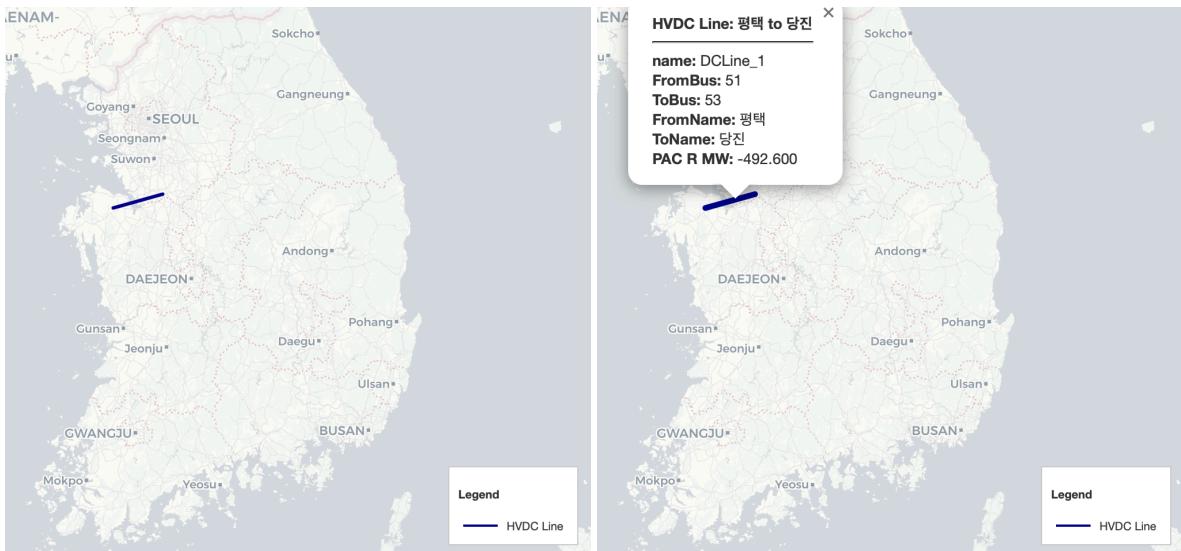
- Enable **Branch (AC)** to display AC transmission lines on the map.
- Voltage levels (e.g., 765/345/154 kV) are indicated in the **legend included in the screenshots**.
- Click a line to open an information popup.

- circuit ID
- status
- rating (MVA)
- loading (%)
- P/Q flow
- base kV



HVDC Line

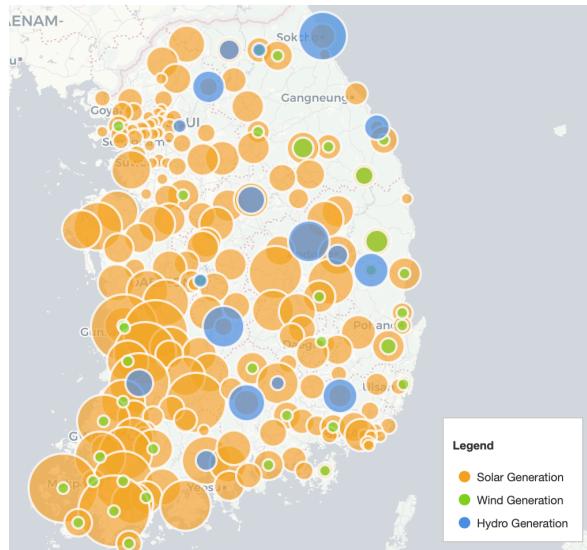
- Enable **HVDC Line** to display HVDC links on the map.
- HVDC lines are shown as a separate layer, and the legend is included in the screenshots below.
- Click an HVDC line to open an information popup.
 - line name
 - from/to bus number & name
 - HVDC power transfer value (e.g., PAC in MW)



Renewable Energy Visualization

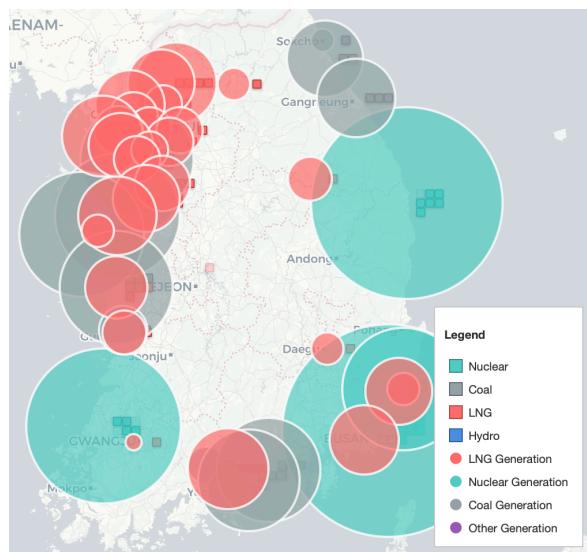
- **Toggles:**
 - Solar
 - Wind
 - Hydro

- The selected resource(s) are shown as **circles** on the map. (Circle size is relative)
- Click a circle to open a popup showing the **Bus ID** and the corresponding **generation (MW)**.



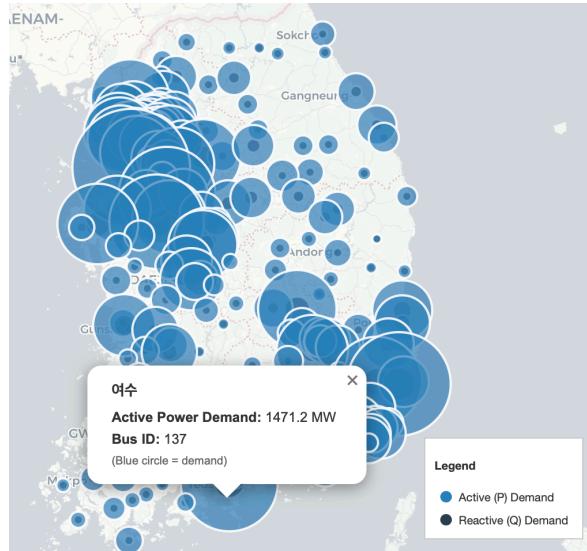
Conventional Generation Visualization

- Toggles:**
 - LNG
 - Nuclear
 - Coal
 - Other
- The selected fuel category(ies) are shown as **circles** on the map. (Circle size is relative)
- Click a circle to open a popup showing the **Bus ID** and the corresponding **generation (MW)**.



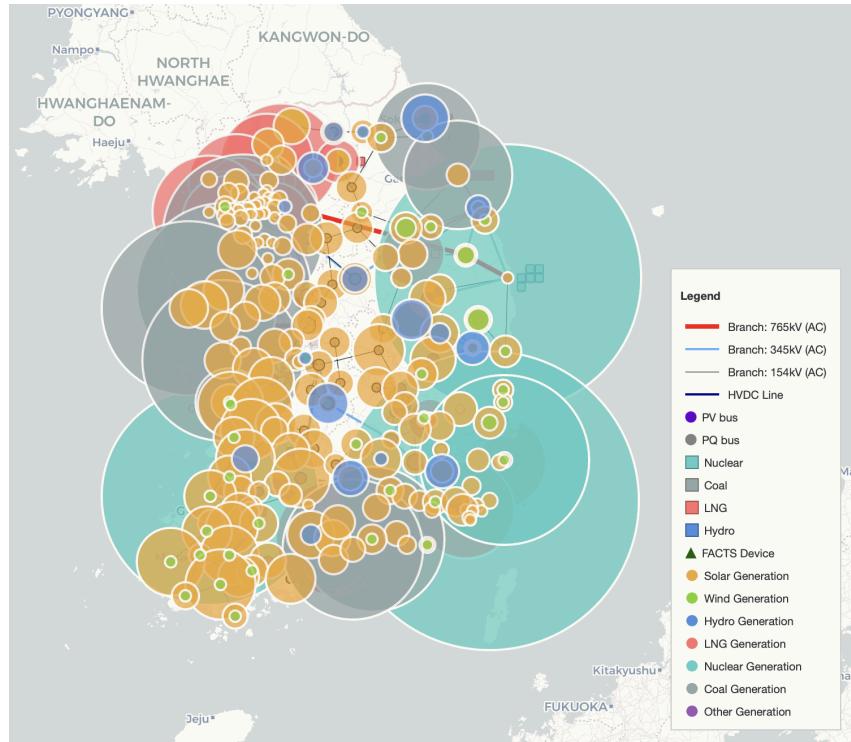
Demand (Load) Visualization

- Toggles:**
 - Active (P)
 - Reactive (Q)
- The selected demand component is shown as **circles** on the map. (Circle size is relative)
- Click a circle to open a popup showing the **Bus ID** and the corresponding **demand value (MW for P, MVar for Q)**.



Circle Size Scale

- Use the **Circle Size Scale** slider to adjust the global scale of circle-based overlays (renewables, conventional generation, demand).
- Increasing the scale makes circles larger; decreasing the scale makes circles smaller.

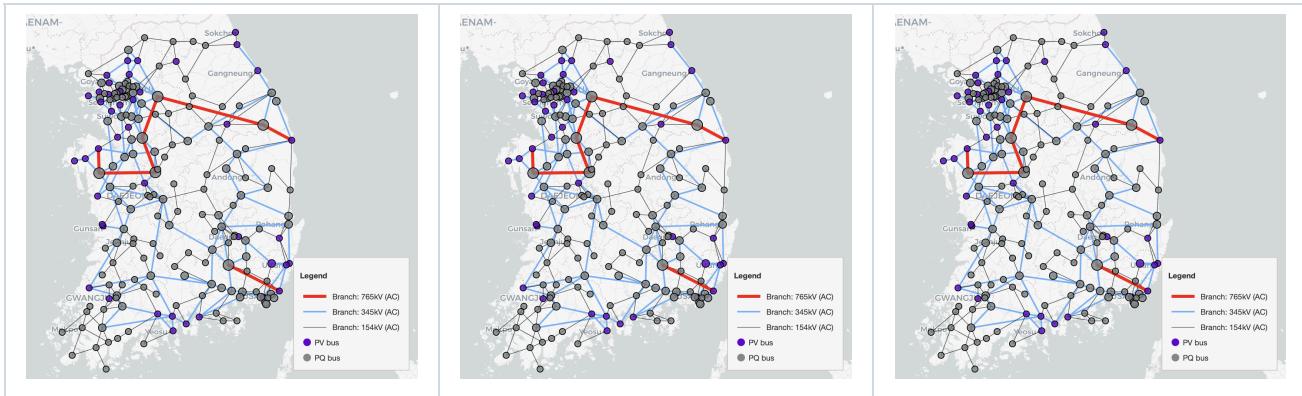


Example: adjusting the Circle Size Scale (50% ~ 150%) slider changes the displayed circle sizes.

Line Voltages (Branch)

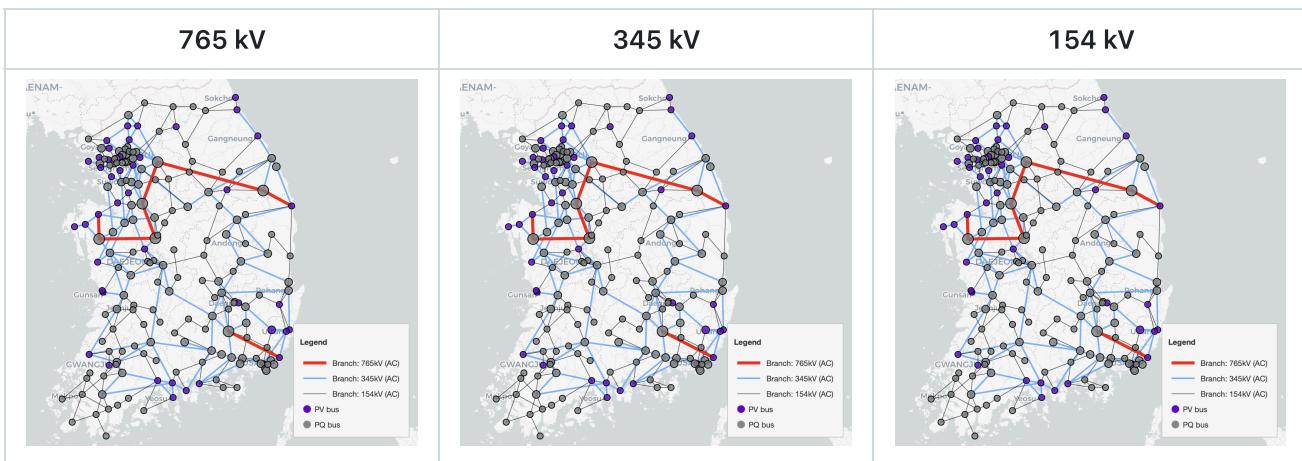
- You can toggle which AC branch voltage levels are displayed:
 - 765 kV
 - 345 kV
 - 154 kV

765 kV	345 kV	154 kV
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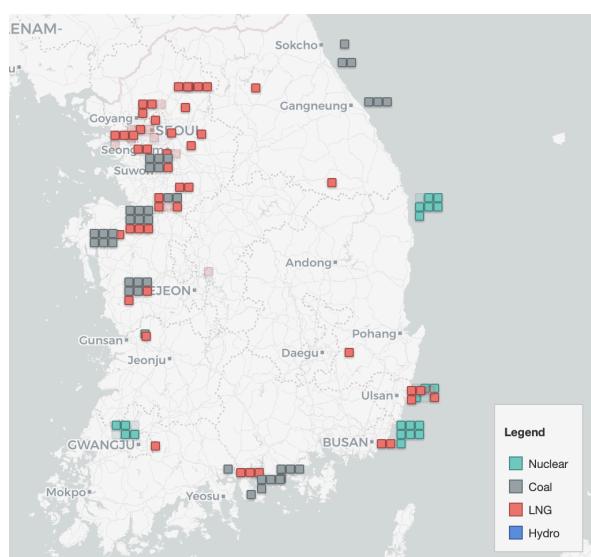
Bus Voltages

- You can toggle which **Bus voltage levels** are displayed:
 - 765 kV
 - 345 kV
 - 154 kV



Service Status

- Service status controls let you filter which components are displayed based on their in-service state.
- For each component type (**Bus**, **Generator**, **Lines**), you can select one of:
 - ON:** show only in-service / active elements
 - OFF:** show only out-of-service / inactive elements
 - ALL:** show both ON and OFF elements



Generator Fuel Type

- Generator Fuel Type controls let you filter which components are displayed based on their fuel type.
- For each component type, you can select one of:
 - Coal (석탄)
 - LNG (액화천연가스)
 - Nuclear (원자력)



3. Top Right Bar

- **Search:** use the search box to quickly find and zoom to network elements.
 - Bus: search by **bus name** or **bus ID/number**
 - Branch/Line: search by **line/circuit ID** or **from/to bus ID (From/To)**
 - ...
- **Help:** opens a keyboard-shortcuts panel (press **H** to show/hide).
 - Navigation & View
 - Labels
 - Visualization
 - Selection

Keyboard Shortcuts

×

Navigation & View

F	Focus Search
R	Toggle Right Sidebar
V	Toggle Selection Mode (Drag to Select)
Esc	Close Help / Clear Search

Labels

B	Toggle Bus Labels
L	Toggle Line Labels
G	Toggle Generator Labels

Visualization

P	Toggle Power Flow Animation
Q	Toggle Reactive Power Flow Animation

Selection

C	Clear Selection List
Shift + Click	Add to Selection

Press **H** to show/hide this help

- **≡ Details/Selection button:** toggles the **Details/Selection** panel, where you configure what to display on the map.

4. Details/Selection

Select All Displayed

- Add all currently visible elements to the selection list.

Clear List

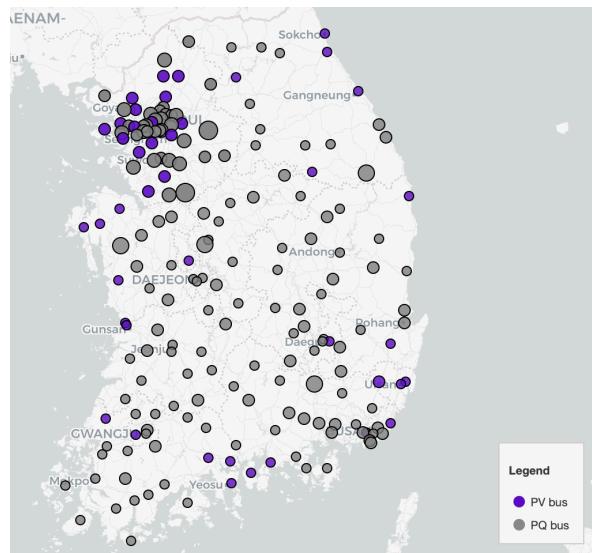
- Clear the selection list.

Reset Colors

- Reset selection colors to defaults.

Preset

- The **Preset** dropdown provides predefined groups (e.g., regional bus ranges, regional generators, and inter-area tie lines).
- Selecting a preset automatically highlights and adds the corresponding elements to the selection list.
- The example GIF below shows the **수도권 모선 (Bus 1–51)** preset.

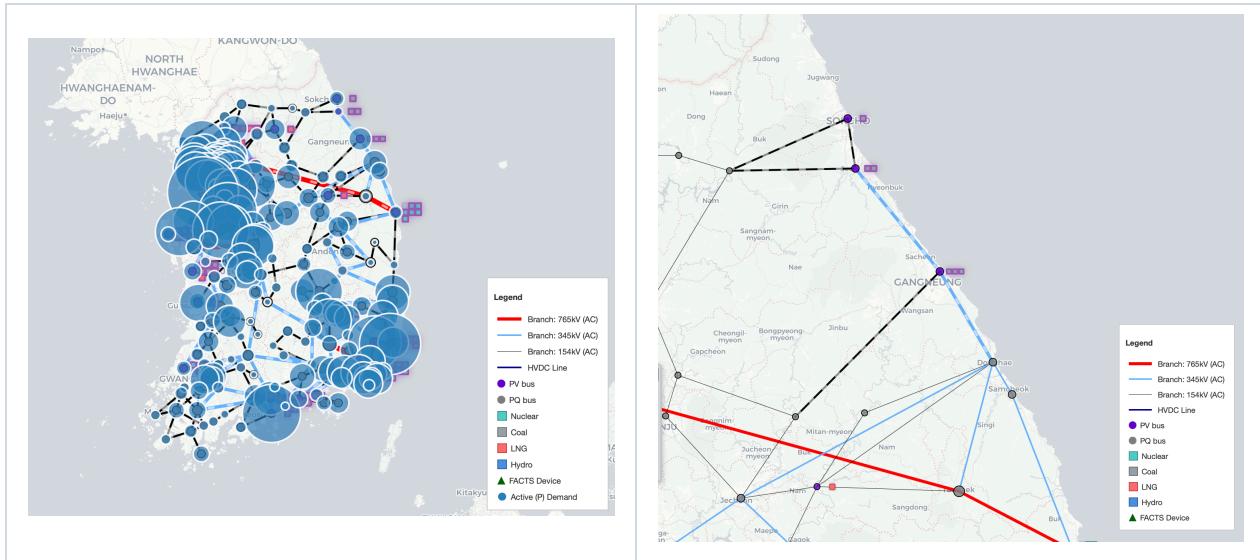


Pflow / Qflow

□ README



P flow on the map



Labels (Bus/Line/Gen)

- Use the label toggles to show names/IDs directly on the map (useful when zoomed in).
- Bus labels** show the bus ID and name (e.g., 65: 속초고성).
- Line labels** show the from/to endpoints (e.g., 65(속초고성)_to_69(인제)).
- Generator labels** summarize generators at a bus (e.g., number of units, fuel type, and MW output/capacity).

Bus Label	Line Label	Gen Label



Releases

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Languages

- Jupyter Notebook 100.0%