

One Less Nuclear Power Plant Initiative

SEOUL SUSTAINABLE ENERGY ACTION PLAN

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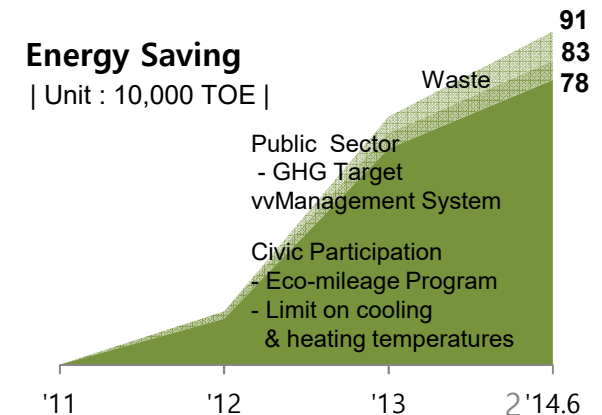
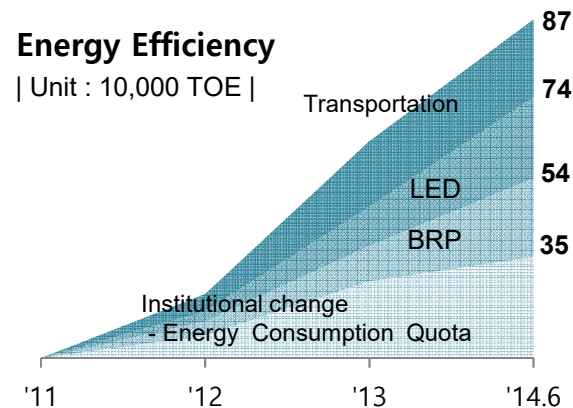
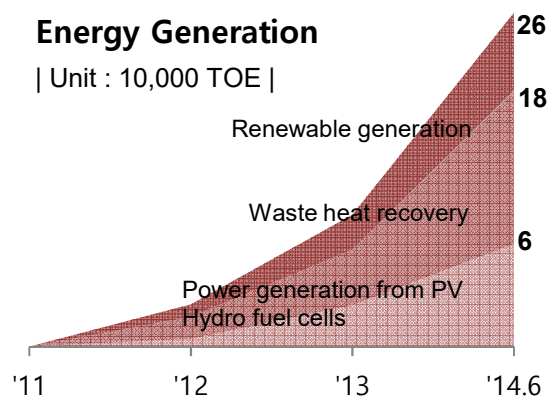


**To proactively respond to energy crisis and climate change,
Produce and save energy
equivalent to the output of one nuclear power plant.**

April 2012.
Phase 1.
One Less Nuclear Power Plant

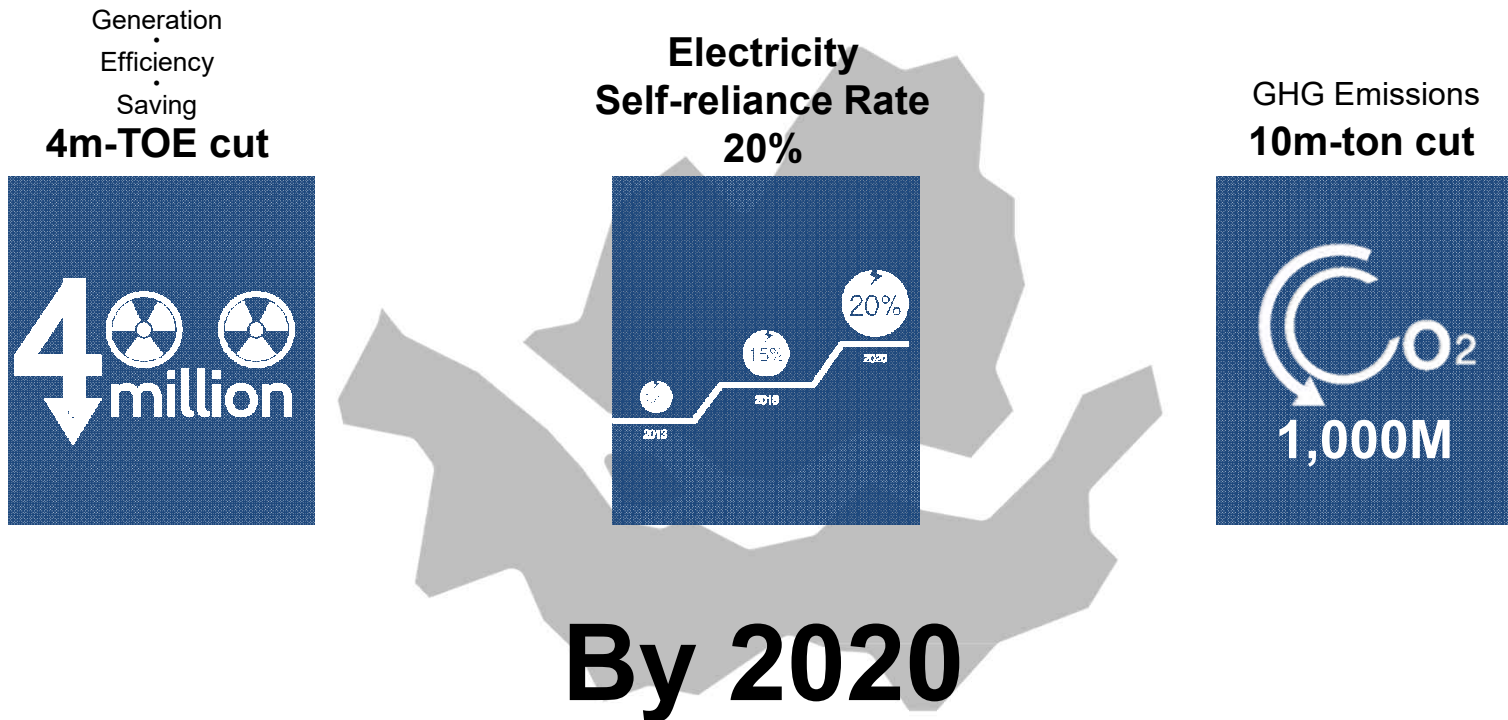
August 2014.
Phase 2.
Seoul Sustainable Energy Action Plan

In the first half of 2014, 2 million TOE of energy was saved!



SEOUL

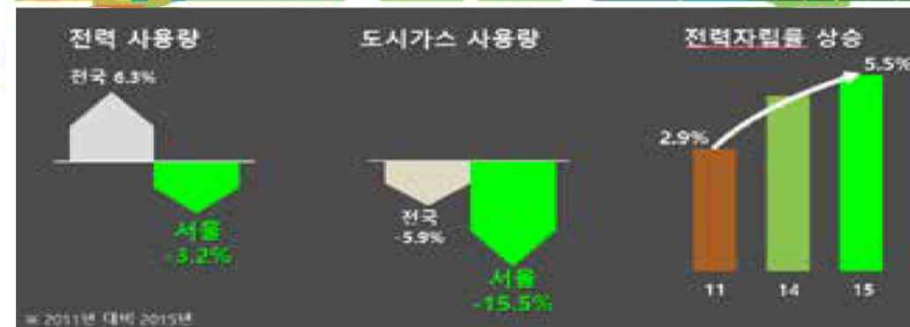
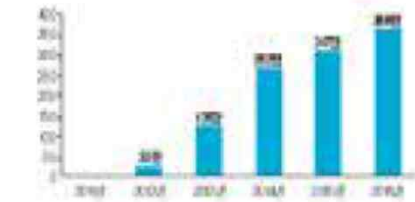
ONE LESS NUCLEAR POWER PLANT SEOUL SUSTAINABLE ENERGY ACTION PLAN



Transition to 'Energy Independent City'

- 3 core values : Energy-independence, Sharing and Participation -
- Towards High Energy-efficient Society -

ONE LESS NUCLEAR POWER PLANT Statistics 2015/2016



Track Record of Civic Engagement until 2016

Civic engagement in OLNPP by 2016:

3.37 million people



PV plants: 28,154

Civic funds: 1,044ppl Mini PV Plant: 25,312
Public facilities, school PV: 1,060 Power generation project buildings: 738



Fuel cell, co-generation, geothermal plants: 748

Fuel cell: 442 (residential: 419, commercial: 19, power generation: 4)
Co-generation plants: 45 Small-sized wind power plants: 73
Facilities using geothermal energy: 135 Wood pellets: 53



BRP among existing buildings & houses: 572,333

Existing buildings: 378,087 households (public buildings: 168, private buildings: 171,063, public rental: 203,294)
Low-income housing: 3,462
Home energy clinic: 71,900 households (including 1,379 small building energy auditors)
Replacement into eco-friendly boilers: 122,346 households



Design of Green Buildings: 3,949

2016: 1,842ppl
2015: 2,107 ppl



Transportation: 637,000ppl

- Car driving mileage: 520,000ook
- Eco-friendly vehicle (electric/hybrid) purchases: 25,752ppl
- Early disposal /Retrofit of outdated diesel-powered cars: 75,150ppl
- Learning eco-friendly driving & attaching eco-friendly device: 10,358ppl
- Enrollment in car sharing program: 5,956

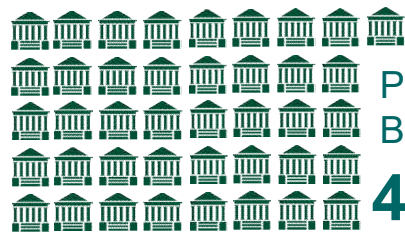


Joining eco mileage: 187mn (as of Dec 2016)
Fostering green leaders: 50,477ppl
Energy Stewards: 92,813ppl
Energy-saving shops: 5,022
Fostering energy designers: 523ppl (including 42 social workers)
Bidding for energy-saving projects: 152 organizations
Participating in energy education & tour programs: 78,934ppl
Taking part in Seoul Energy Welfare Fund & welfare projects: 31,304ppl



Solar City, Seoul Project

Solar Power Capacity of 124.6MW (23,612 / Jan. 2003 to Dec. 2016)



Public
Buildings

46.9



Schools

15.7



Private
Buildings

36.8



Micro PV

25.2

Encourage Private Sector Solar Power Generation

- Lower interest Rate by 0.3% to 1.45 from 1.75%(Feb. 2016)
- Rent Public Spaces to Solar PV Co-ops



124.6MW

Enough to power 40,000 households

- Power generated for 3.2 hours per day
- Households with a monthly average power consumption of 304kWh(2015)

Expansion of PV installations

21,823 balcony mini-PV / 25,200kW (as of Dec. 2016)

Expand PV installation subsidies
(households → all buildings including public buildings)

Build PV landmarks to raise public awareness

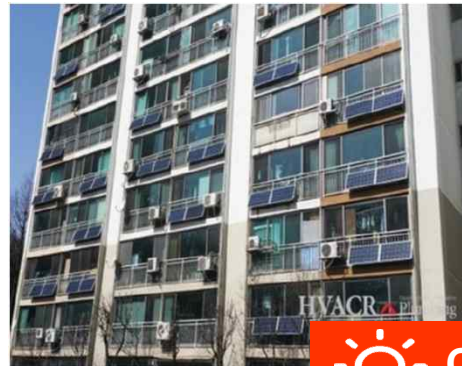
<PV on bus stations>



< PV on soundproof walls >



<Hybrid Security Lights>



 Civic Fund (August 2015)

PR : PV panels on display, pilot PV installation etc.

< Official Solar Map Website >



< Lotte Hi-mart Outlet >



KB Seoul Solar Power Plant Investment Trust

- Maturity : 3 years
(Minimum USD 879, Maximum USD 8,791)
- Total : USD 7.25 million
- Holders : **1,044 persons**
※ Average investment per person : USD 6,938
- Invest in installation of 4.24 MW PV power plants,
and the profits will be shared by the holders

LED CITY SEOUL

LED Replacement in Public Buildings

LED replacement in public offices, hospitals,
district offices, etc. (2015 to 2016)

530,000 *units*

LED replacements at subway stations
by Seoul Metro, Seoul Metropolitan Rapid Transit Corp

640,000 *units*

LED replacements at Street & Security Lights

68,000 *units*

PV-run LED traffic signs at Children Protection Zone
(Aug. to Dec. 2015)

1,982,000 *USD* ⁸

LED Replacement in Private Buildings

(Jul. 2014 to Dec. 2016)

10,281,000

Lighthouse Project

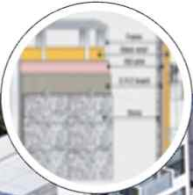
Construction of small • medium energy efficient model houses for PR

Model houses that include passive elements, energy production and monitoring systems

Four energy efficient model houses to be built including daycare centers and senior citizen community centers

Develop a manual for the model houses, and share and promote the results

Insulation
Materials



Three-pane
windows



Air tight
construction



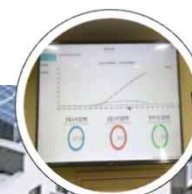
heat recovery
ventilator



PV



Monitoring
System



Building Energy Management System(BEMS)

Introduced at Seoul Seo-buk Hospital on a pilot basis

Reinforced environmental impact assessment requires BEMS on new large buildings

Eco-friendly boilers



Insulation Windows



Energy-efficient LED



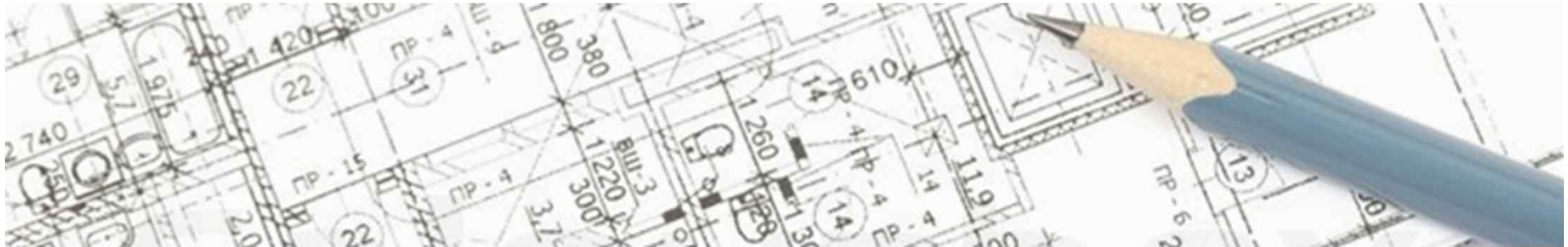
Automatically controlled
BEMS



Revised deliberation standard for Environmental Impact Assessment applicable to new buildings over 100,000m² in area (Jul. 2015)

Increase the uptake of
renewable energy Expand LED bulb replacement **Mandatory
BEMS**

12% ➔ **15%** 70% ➔ **80%**

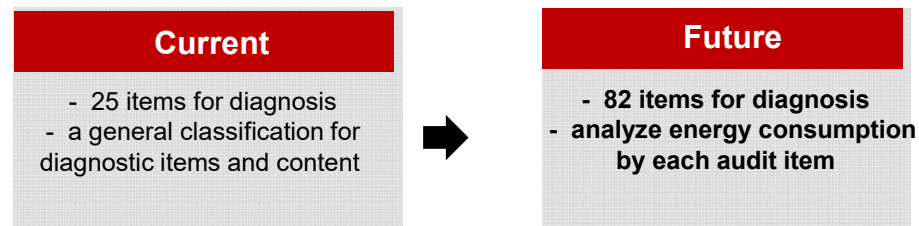


Improve energy diagnosis to promote building energy efficiency

Increase effectiveness of energy diagnosis by changing a relevant institution to redefine diagnostic scope

※ Seoul Energy Ordinance was amended and announced (Oct. 8. 2015)

Implement energy diagnosis for Seonam Hospital (pilot basis) and buildings owned by SMG (Since Jan. 2017)



Improve Eco-mileage Program

1.87M members / 384,940 TOE saving (Jul. 2014 to Dec. 2015)

Focus resources on actual energy savers, mandatory registration of membership number

Link GHG reduction and energy welfare improvement

【Expanded standards for provision of incentives】

※ Incentive beneficiaries 70,000 people(Current) → 120,000 people (Expected)

| Changed Standards |

Energy savings	Incentives
Over 5%, less than 10%	10,000 mileages
Over 10%, less than 15%	30,000 mileages
Over 15% (Same as before)	50,000 mileages



USD 912,284 / 50,600 persons

Amount of fund raised and number of citizens invest in the fund
(Jan. 2015 to Dec. 2016)

Launch “Citizen Board for Seoul Energy Welfare Civic Fund” & Youth Volunteer Group

Management Committee consists of 20 experts in energy welfare, law and accounting

Youth Volunteer Group composed of 45 college students promotes the fund

< Launch of Citizen Board (7.15) >



< Onbichumi Street Campaign (7.18) >



< Fundraising March at Mt. Namsan(9.12) >





Thank you for attention!
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