The Effect of EV Propagation Policy in Changwon
Introduction of Changwon City

Grew as a role model for local development in Korea

Changwon City - grew as a role model for local development

- Population: 1.08 mil
- Budget: 2.1 bil USD
- Area: 745.33㎢
- Companies: 4,013
- Export: 31.1 bil UDS

※ Accounts for 5.6% of Korea’s overall export revenue
Introduction of Changwon City

Chair City of Eco-mobility Alliance (2012~2015)
Contribution to development of the Eco-mobility Alliance and spread of bicycle policies
Background of EV Policy

What it should be an EV (electric vehicle)?

Retain clear sky and air

<table>
<thead>
<tr>
<th>Bicycle</th>
<th>Green way</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>2010</td>
<td>2011</td>
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- Project of Bike capital
- Turning disused railway into walk space
- Selected as city of EV
What it should be an EV?

- Limitations of bicycles as a transportation mode replacing passenger vehicles

<table>
<thead>
<tr>
<th>Physiography</th>
<th>Climate</th>
<th>Rise in External Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>High gradient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrow roads</td>
<td></td>
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2006 → 2011
Daily internal traffic
Down by 15,200 cars

2006 → 2011
Daily external traffic
Up by 71,000 cars
What it should be an EV?

- Implementation of EV policy, considering vehicles’ environmental benefits and industrial efficiency

Environmental Benefits

<table>
<thead>
<tr>
<th>Fuel cost for 1-yr drive(electric fees)</th>
<th>15% of internal-combustion vehicles’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of EVs for 1 yr(20,000km)</td>
<td>CO2 reduction by 3.2 tons</td>
</tr>
<tr>
<td>GHG emissions</td>
<td>½ of internal-combustion vehicles’</td>
</tr>
<tr>
<td>Electric motor drive</td>
<td>No noise, No vibration</td>
</tr>
</tbody>
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Industrial Effects

- 9 million’s worth of direct economic effects from every Spark EV produced
Selected as EV leading city of Korea (DEC 2011)

- Government budget support to deploy electric vehicles
  - Total project cost: 14mil USD  【Government 10mil USD, Changwon 4mil USD】

2016 Incentives: 17,454 USD (ev)  3,636 USD (charger)
Deployment of EVs

EV Deployment Status (DEC 2015)

A total of 354 cars deployed (3rd nationwide, 1st among local governments)

- Individual : 153 cars, Corporate : 95 cars, Business use of Changwon city : 106 cars
Deployment of EVs

Public Charging Infrastructure Status (SEP 2016)
• Small Station (Only Quick Charger) : 13 spots
Deployment of EVs

Public Charging Infrastructure Status (SEP 2016)

• Large Station : 11 spots
Deployment of EVs

Private Charging Infrastructure Status (SEP 2016)

- Small Station: 7 spots
Depotment of EVs

Ordinance enacted to support EV promotion in Changwon (May 2014)

- Creation and implementation of plans to promote EVs every year
- Support for purchase of EVs and rechargers
- Support for convenient use of EVs
- Budget assistance to nurture talents in the field of EVs and to engage in PR activities
Deployment of EVs

A cut in parking fees of EVs

Parking fee cut at public parking lots in Changwon (Sep 2014)

- Parking fee reduction by 50% at 50 paid public parking lots
- Parking fee reduction by 50% at parking lots of public institutions
Deployment of EVs

Various PR approaches to deploy EVs

Exhibitions of EVs and ride events
Deployment of EVs

Various PR approaches to deploy EVs

Provision of information on EVs through various media
Deployment of EVs

Various PR approaches to deploy EVs

Special news coverage on EVs by the local press

A shift in the perception of electric vehicles which have been regarded as short-haul transportation through a round-trip, long-distance drive from Changwon to Seoul (720km)
Benefits from EV Deployment

Analysis on EVs deployed to general public

- **Total mileage (Dec 2015):** 3,983,567km
  - Daily average mileage: 39.2km (in 2014) → 49.7km (in 2015)

- **CO2 emission reduction (192g/km):** 763 tons
  - A cut in CO2 emission incl. thermal power generation: 389 tons

- **Fuel cost saving (Gasoline 10km/L):** 3,983,567km
  - Amount of recharging electricity used (2014~2015): 338,588 kWh (75,630 USD)
  - 13% of gasoline-fueled vehicles’ fuel cost from 2014 to 2015

- **EV User Satisfaction:** Very satisfied 26.6%, Satisfied 60.0%, Unsatisfied 13.4%
  - Complaints: Insufficient charging stations, difficulty in long-range drive
Benefits from EV Deployment

Features of Changwon’s EV Policy

• Suggestion of detailed criteria to collect and select citizens who can make a purchase of an electric vehicle
• Creation of criteria for measures to supply EVs, conduct delivery inspection and support after service
• Suggestion of follow-up management after paying EV subsidies
• Suggestion of building new charging infrastructure in cooperation with organizations concerned

Spread nationwide as a standard for detailed EV deployment measures
(Received a commendation for excellent deployment of Evs from the Minister of Environment)
Future Plans

Aim of deploying 5,000 EVs by 2020

• 1% out of all passenger vehicles shifting to EVs
• Establishment of 50 public charging stations to prepare for high-performance EVs that can drive more than 300km with a single charge
• Deployment of EVs for public transportation like an EV bus and an EV taxi
• Operation of parking spaces only for green cars like hybrid vehicles, PHEVs and EVs
• Promotion of eco-friendly cars by associating deployment of EVs with that of hydrogen-fueled vehicles
Mecca of Eco-Mobility

Changwon

Thank you

CHANGWON