

Promoting green growth & sustainable development in ASEAN: GE's imagination, vision & execution

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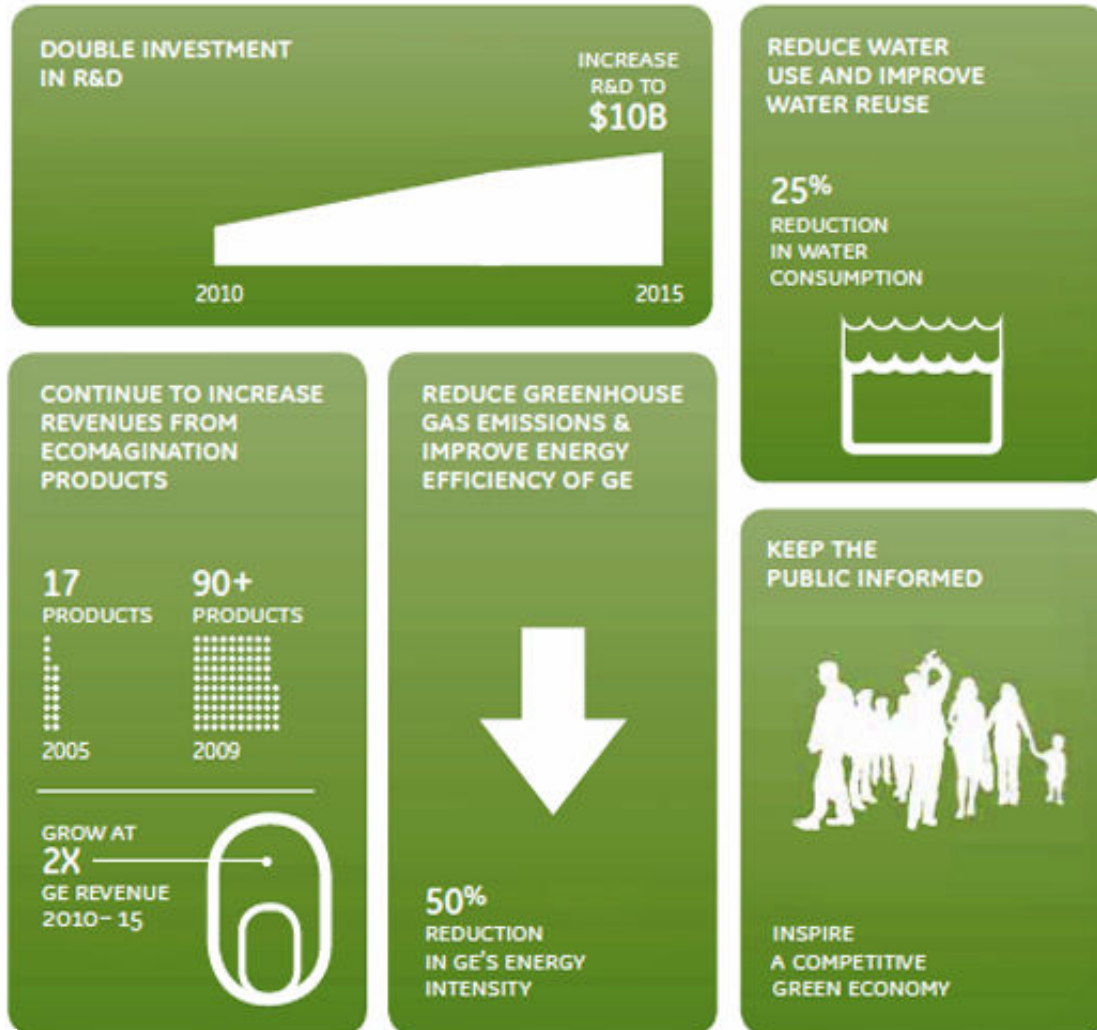
GE imagination at work



Ecomagination

A business initiative to help meet customers' demand for more energy-efficient products and to drive reliable growth for GE

What are GE's commitments?

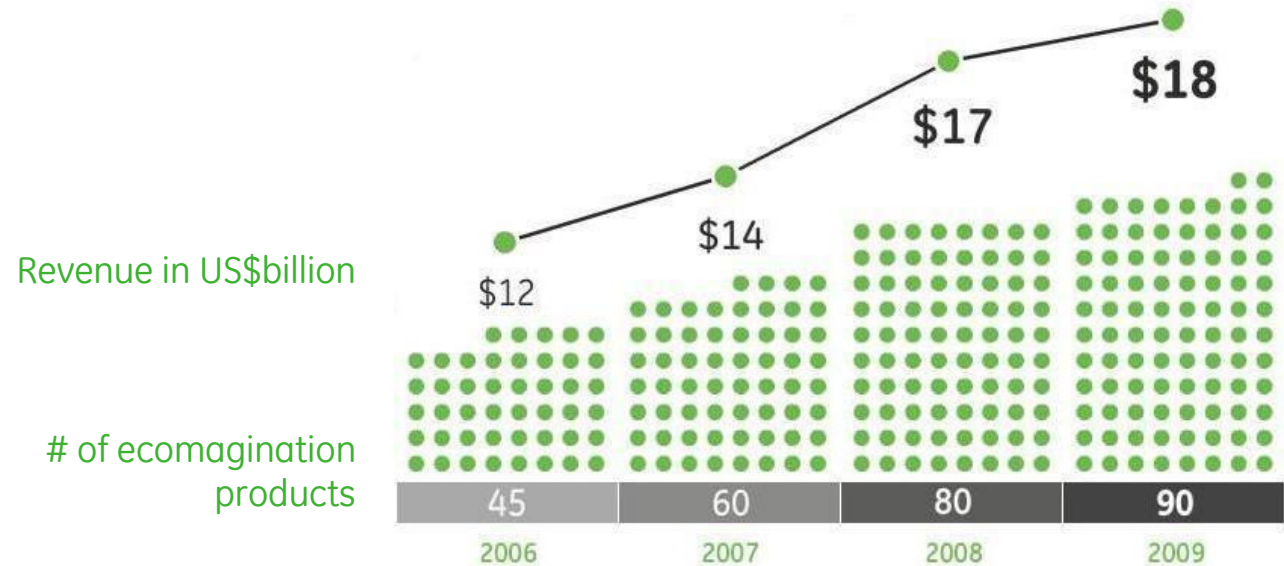


Ecomagination progress

Double R&D to
US\$1.5 billion in
2010



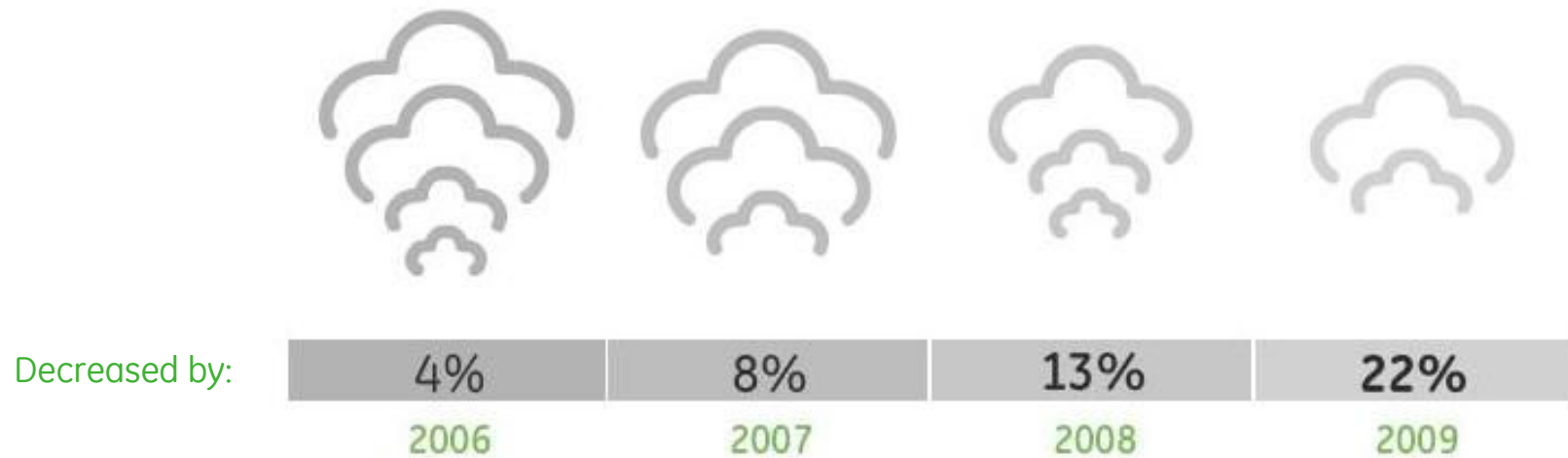
Increase Eco
Product revenues



GE imagination at work

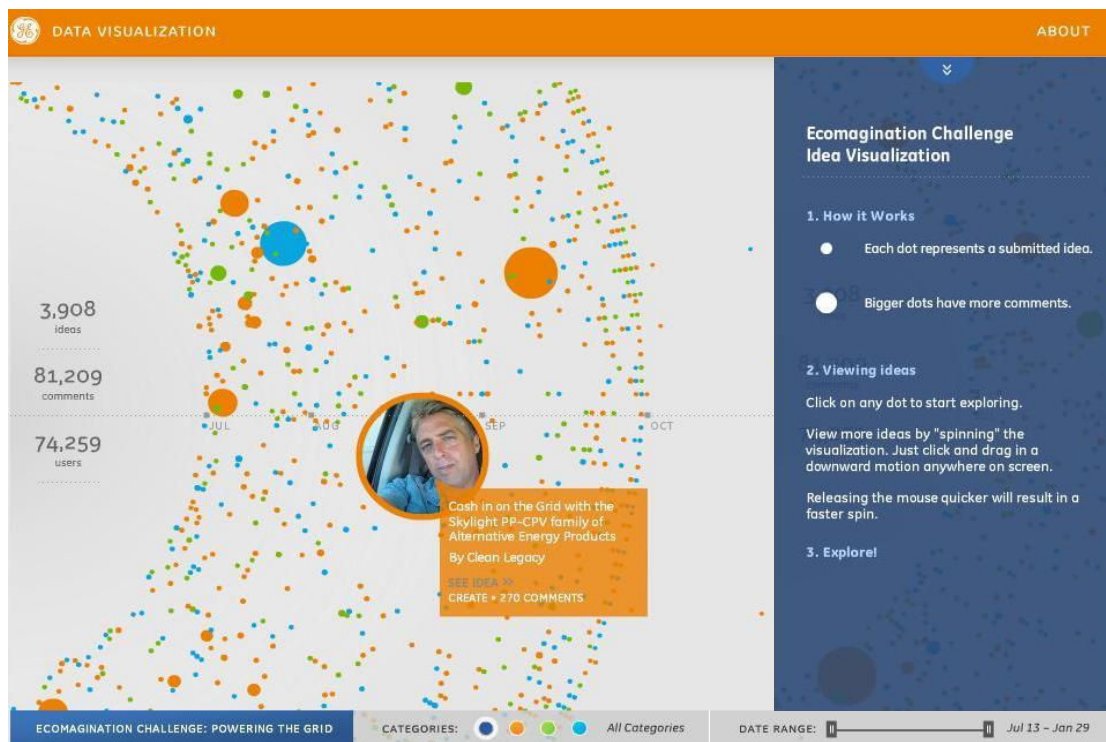
The growth of ecomagination - cont

Reduce GE
GHG emissions



Ecomagination Challenge: powering the grid

- **\$200 million innovation experiment:** for businesses, entrepreneurs, innovators & students to share their best ideas on how to build the next-generation power grid.
- **4K ideas submitted**
- **Categories:** Renewables, Grid and Eco Homes/Eco Buildings.
- **Partnered with four leading venture capital firms:** Emerald Technology Ventures, Foundation Capital, Kleiner Perkins Caufield & Byer and RockPort Capital.

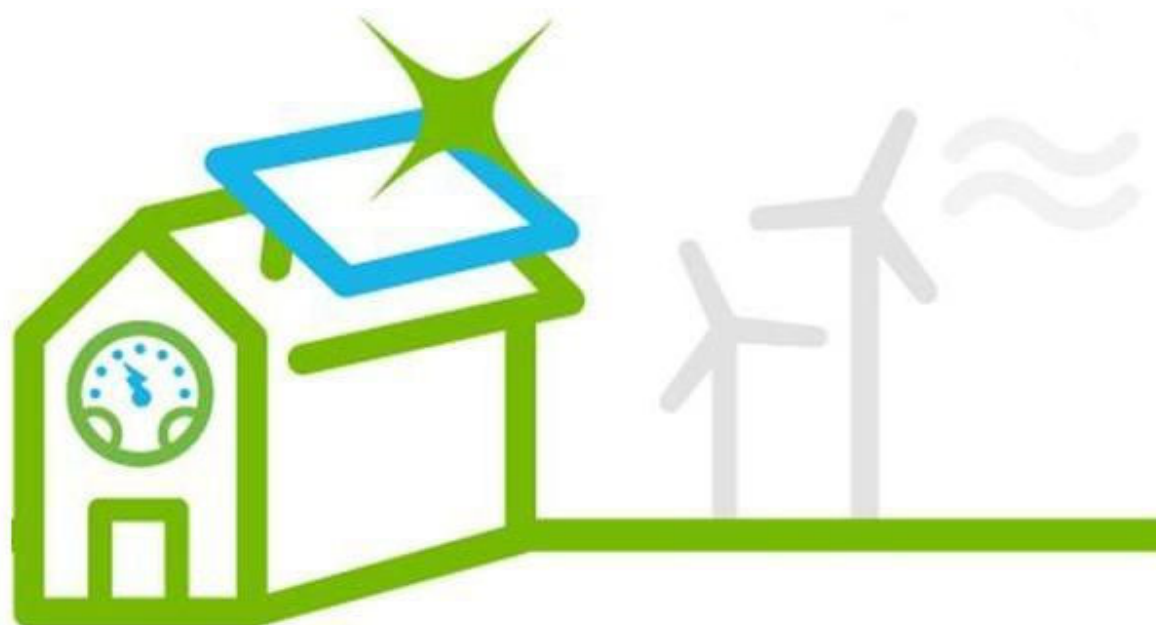


Five winners:

- Capstone Metering: Intelligent Water Meters
- ElectricRoute: Secure Communications Network for the Electric Grid
- GridON: Controlling Power Quality in Electric Grids
- IceCode: Wind Turbine Blade Anti-Icing and De-Icing
- WinFlex: Inflatable Wind Turbines, Kiryat Yam

Ecomagination Challenge: powering your home

- **Phase II of the GE ecomagination Challenge:** focusing on home energy with an open invitation for innovative ideas about capturing, managing, and using energy in the home.
- **Partnering with venture capital firms:** Emerald Technology Ventures, Foundation Capital, KPCB and Rockport Capital, to help back the most promising ideas.
- **802 ideas so far**

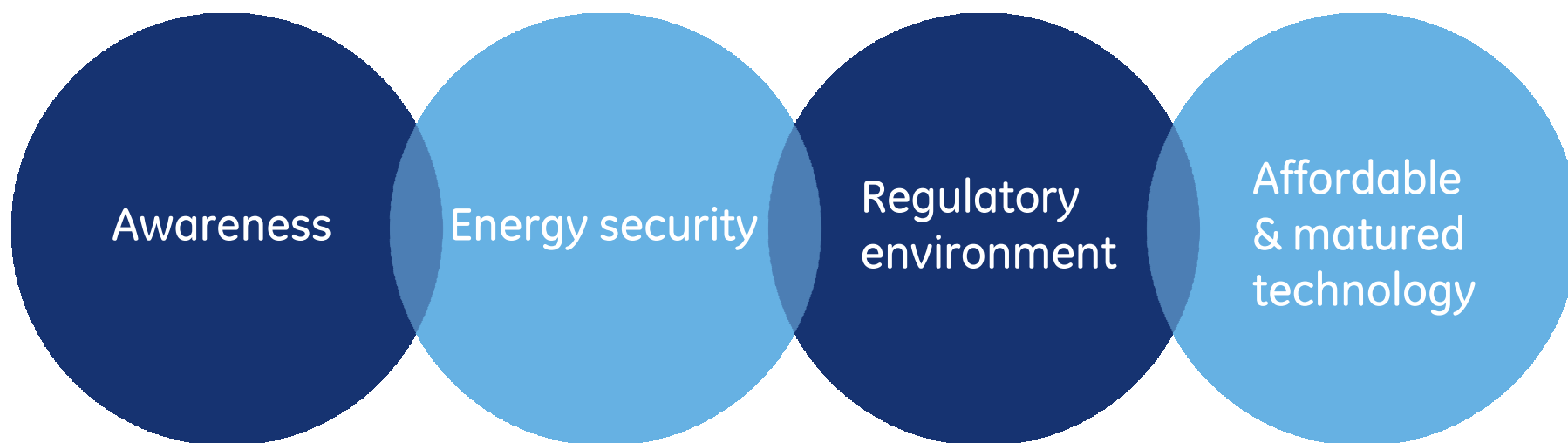


An aerial photograph of a city skyline at sunset. The sky is filled with vibrant, colorful clouds in shades of pink, orange, and blue. The city lights are visible, and the Petronas Towers are prominent on the right side of the image. The text is overlaid on the lower left portion of the image.

Hurdles & barriers

ASEAN countries face challenges in promoting sustainable development: awareness, energy security, regulatory environment, affordable/matured technology

Challenges



- Availability of CDM, carbon credits
- Promotion of tech transfer from developed world
- Low regional cooperation in sharing of best practices

- Increase in energy prices
- Over-reliance on imports
- Availability of resources effected by political instability & natural disasters
- Increasing competition

- Public private partnerships
- Government incentives
- Consistency of policies
- Feed-in tariffs

- RE tech development: lack of product stds, quality control measures
- Limited access to product information for potential investors, financing agencies, govt





What's out there?

Efforts undertaken, ongoing and areas to leverage on for business opportunities and to promote sustainable development

Eco development

Technology, energy & innovation converging to shape homes & communities

- 1 Energy efficiency
- 2 Nucleus
- 3 Smart grid
- 4 ZeeWeed® membrane bioreactor (MBR)

ecomagination™
a GE commitment



GE imagination at work

Eco development : Energy efficiency



More than 70 percent of GE's total dollar sales from appliances came from ENERGY STAR-qualified models

More than 750 ENERGY STAR-qualified lighting and appliance products



The Homes Inspired by ecomagination program provides an energy-efficient whole-home solution. These unique homes are **built so well** they've been "Certified Green" by Environments for Living® and are ENERGY STAR® qualified.

Eco development : Nucleus



insight



- Create a smart home
- Track energy consumption
- Save on energy costs

convenience



- Track energy savings from a computer
- Energy info on a smart phone

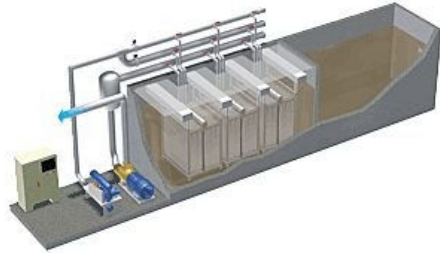
control



- Nucleus energy manager
- Energy displayed with Brillion Technology

Eco development : MBR

ZeeWeed® membrane bioreactor (MBR) combine proven ultra-filtration technology with biological treatment for municipal, commercial & industrial wastewater treatment, and water reuse applications.



- Over 600 MBR systems used worldwide
- **MY:**
- treat wastewater for Felda + P&G factory in Kuantan
- treat mountain water for Samsung factory in Seremban



GE imagination at work

The Solaire Apartments in Battery Park, NY is the first green residential high-rise building to use MBR



75% Reduce in the need for freshwater from city's water supply



Decrease in energy costs

Eco development : Smart Grid

GE is working to help improve electricity productivity, manage electricity costs and mitigate environmental impacts.

GE's progress:

- Smart Grid demonstration centers in London & Yangzhou
- smart meters to homes & businesses in Miami
- local smart grid project, Sweden
- working within Energy Australia consortium on the SmartCity project

Ongoing efforts :

- Smart grid development, SG: Intelligent Energy System Pilot Project led by Energy Market Authority announced in Nov 2009
- Smart grid project by Meralco, PH: expected to cover transmission of electricity to 4.8 million customers



GE imagination at work

Electric Vehicles

For every 10,000 gas-powered car users that switch to EVs, CO2 emissions would be reduced by 33,000 metric tons per year. To facilitate widespread EV adoption, the electrical grid must be modernized and charging stations must be accessible, quick and easy.



Watt Station

- EV charging time: 4-8 hours (24 kWh battery and a full-cycle charge)
- Allows for integration into a “smart” electrical distribution system

GE's commitment for 25,000 Electric Vehicles

Electric Vehicles

What's happening?

1 Electric tricycles in PH :

- ADB-funded project
- Pilot project: 20 e-trikes + 4 charging stations in Mandaluyong City
- Increase rollout to 20,000 e-trikes: expected to save 100,000 liters of foreign fuel imports each day, \$35 million annually

2 EV development in SG :

- test bedding program
- multi-agency taskforce chaired by the Energy Market Authority & Land Transport Authority
- open platform for all auto manufacturers and technology companies; MoU with Renault-Nissan and Keppel Energy
- Collaboration with SG Power

3 GE - NAZA Group of Companies MOU on EV in MY

4 EV experience tour across US cities



Biogas

Jenbacher engines use the biogas from the anaerobic fermentation of organic waste from agriculture, foodstuff or feed industries to generate power with a high-energy, CO₂-neutral fuel that can be substituted for fossil fuels



ID : Suwung landfill in Bali and the Bantar Gebang municipal waste site in Bekasi, Java

TH : 3 units at Natural Palm Oil Ltd. Mills in southern Thailand. Power from biogas from palm oil waste material

MY : waste-to-energy project in Puchong. Oil palm plantation generate power from palm waste used to power own operations

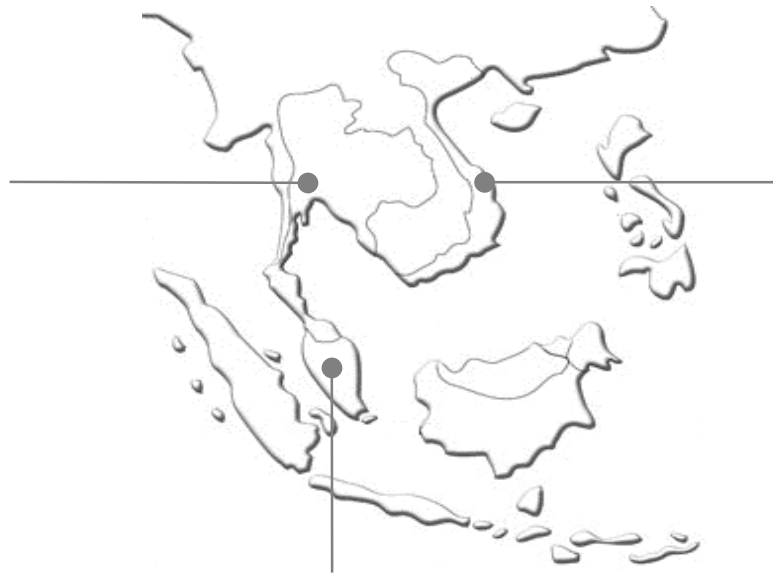


GE imagination at work

Wind energy

Since 2002, GE has established itself as a global leader in the wind industry, installing more than 21 gigawatts of wind turbines around the world

TH: An MOU was signed in Aug 2010 for a wind farm project in the Chaiyaphum province.



VN: Wind turbine manufacturing plant in Haiphong

MY: potential at East Coast facing the South China Sea where there is max wind velocity of 13m/s. Hybrid system to compliment existing energy supply.

The solution is a solution



Modern technology
Owes ecology
An apology

Alan M. Eddison

Green technology
Do not be greedy
But do make money!



imagination at work