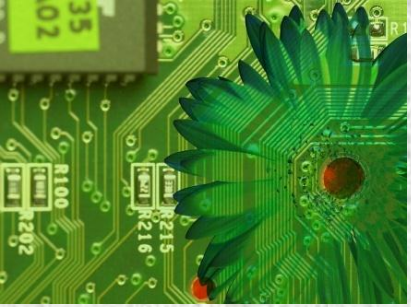




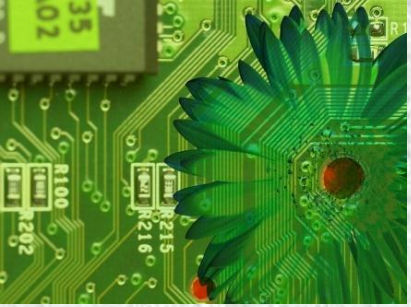
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GOVERNMENT ROLE IN GREEN TECHNOLOGY

Directorate General of Radio Frequency Resources and Equipment Standard, MCIT, Indonesia

Green Power for Mobile Working Group GSMA Seminar

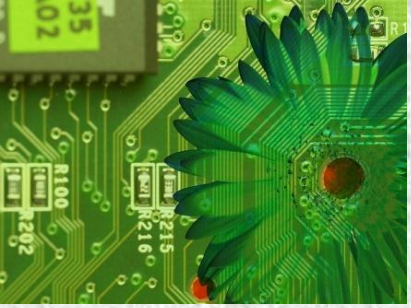
Bali , 13 December 2012



Background

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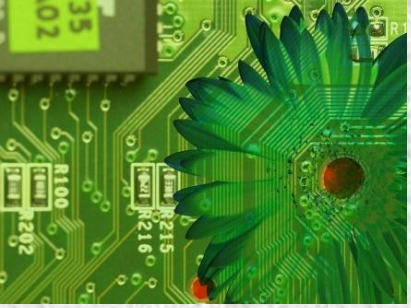
- Information and Communication Technology (ICT) has become a major part to support the advancement of a country.
  - ICT plays a role in the development of economy, defense, and human resources within a country.
- Some studies stated that ICT produces approximately 2 – 3% of the global GHGs emission.
  - ICT developments in Indonesia also showed a significant number and it is going to grow in the near future. Therefore, the emission will increase in the future.
  - Indonesia concerns with this issue and participates in reducing the GHGs emission by developing and implementing Green ICT concept.
- Green ICT roadmap are needed to be a reference of the next years development and implementation of green technologies



Why concern on Green ICT?

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- **Climate change (global warming)**
  - Some studies state that ICT contributes about 2 – 3% of global greenhouse gases (GHGs) emissions, especially carbon dioxide (CO_2) and the figure is predicted will increase every year
- **Energy crisis**
  - The fossil energy is categorized as nonrenewable energy. The data shown that the fossil energy reserves are going to run out in the near future.
- **Advance technology innovations**
  - The research in technologies has very advanced today, especially in ICT field.
  - Some studies state that ICT can be useful to reduce GHGs emissions in other sectors by 23 – 30%.
- **Costumer value (quality of service)**
  - The service to ICT customer should be maintained and improved



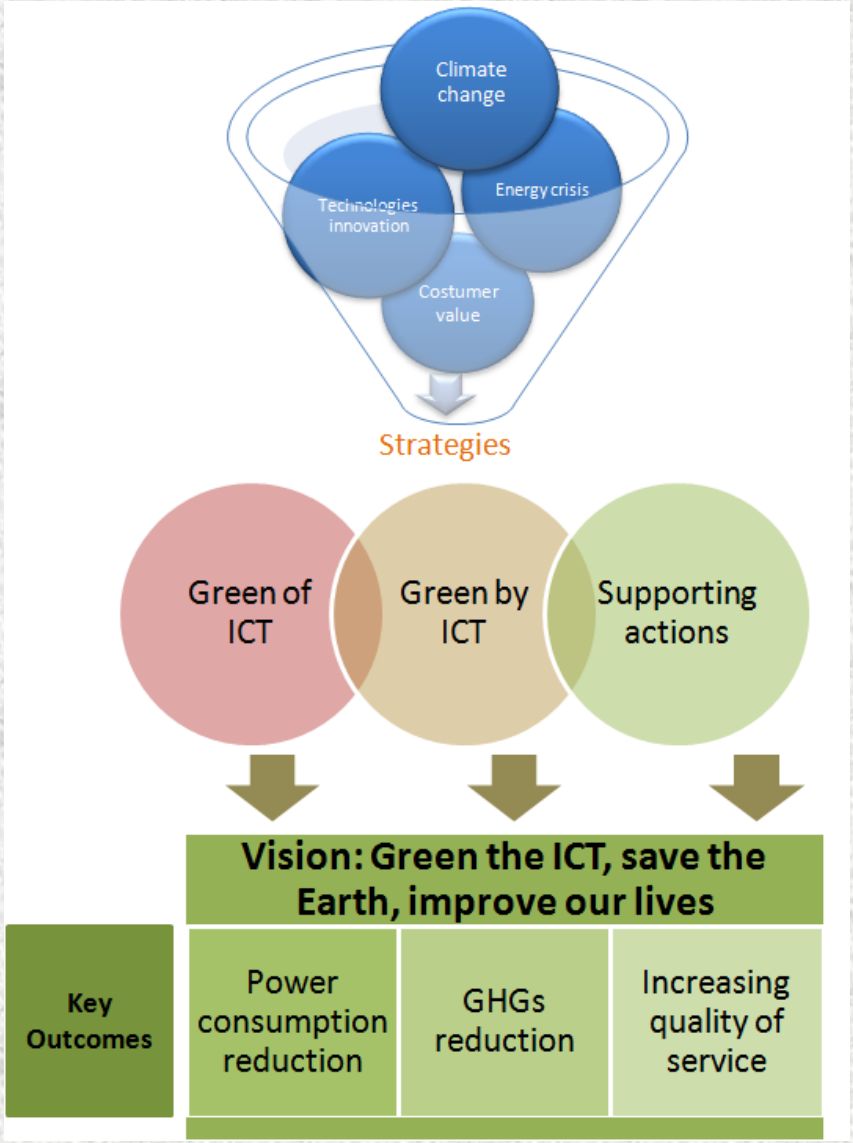
Vision and Outcomes

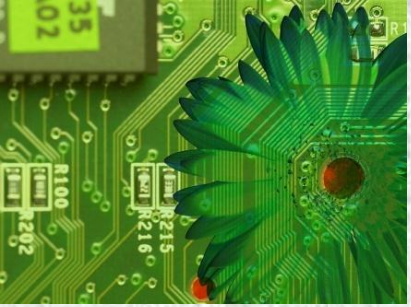
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- Visions with regarding to future ICT development: “green the ICT, save the Earth, and improve our lives”
- Outcomes:
  - **Power consumption reduction.**
    - Future ICT should use alternative (renewable) energy, low power consumption, and be able to help other optimizing their energy usage.
  - **GHGs reduction.**
    - By using alternative (renewable) energy for ICT and helping other sectors optimizing energy usage, the GHGs can be reduced.
  - **Increasing quality of service.**
    - The quality of ICT service as well as the quality of human’s life, lifestyle can be improved by using advanced green technologies.

Strategies

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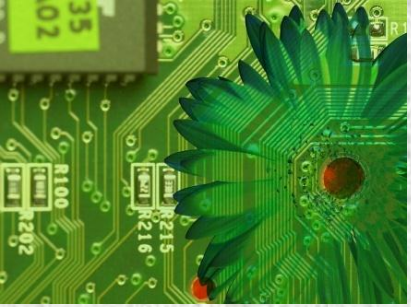




Green of ICT: Developing hugh efficiency and green BS and Data Center

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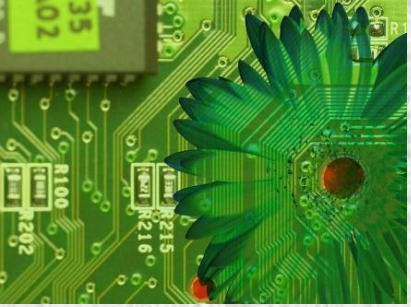
	Actions	Description
1	Research and develop the alternative (renewable) energy	• Increase the research funding for universities • Improve the laboratory equipments • Conduct and increase collaborative research between universities and industries • Conduct and increase collaborative research among Indonesia universities • Increase the scholarship, especially for the energy and ICT fields
2	Standardize the BTS and data center	• Develop one Indonesia standard for green BTS and data center, i.e. determine the minimum requirements so that they can be called “green” • Regulate the utilization of green BTS and data center • Implement the green BTS and data center



Green of ICT: Use and develop high efficency infrastructures and products

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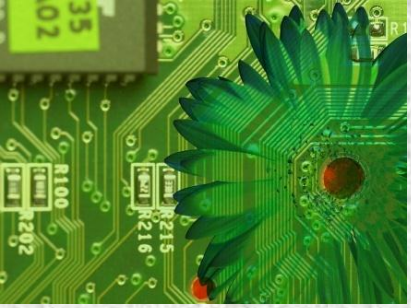
	Actions	Description
1	Facilitate ICT infrastructure sharing	• Design the master plan for ICT infrastructure sharing, such as joint telecommunication towers, single Radio Access Network (RAN) • Regulate the infrastructure sharing
2	Improve the utilization of fiber optics	• Utilize the Fiber-to-The-Home (FTTH) and Radio over Fiber (RoF) systems • Develop the related regulations
3	Standardize and disseminate the green ICT end products	• Develop one Indonesia standard for green ICT end product • Implement the eco-labels and green stickers • Encourage people to use low-power ICT products, such as LED monitors • Optimize the lifetime of the ICT products • License the equipment of ICT



Green by ICT: Optimize system using ICT and Develop Green Systems

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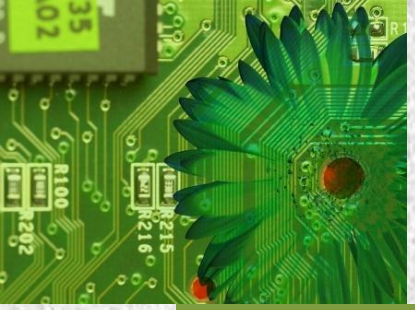
	Actions	Description
1	Develop green computing systems	• Socialize and promote cloud computing applications • Implement the cloud computing • Encourage the community to use cloud computing
2	Optimize the utilization of energy (green systems)	• Design and implement energy/power optimization system for infrastructures such as cooling system for data center, machineries in fabrics, and so on • Develop and implement smart grid systems



Green by ICT: Promote and Increase the Utilization of Green Application

MCIT

	Actions	Description
1	Improve and develop smart applications	• Design and implement low-power, high efficiency, smart applications, such as: ○ Monitoring carbon emission level system ○ Smart online parking system ○ Smart economical car ○ Smart housing ○ Online traffic monitoring system ○ Universal power adaptors
2	Disseminate the online system applications	• Ensure that the internet access has been deployed widely and the knowledge of it has been reached • Develop and implement e-systems, such as: e-government, e-learning, e-payment, e-books



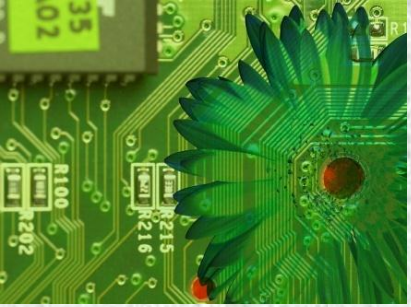
Supporting Actions: Conduct Energy Savings in Everyday Actions

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	Actions	Description

1	Go paperless	• Reducing the use of papers by:
		  ○ Using online and e-systems whereever possible
		  ○ Using recycled papers
		  ○ Using back-to-back papers

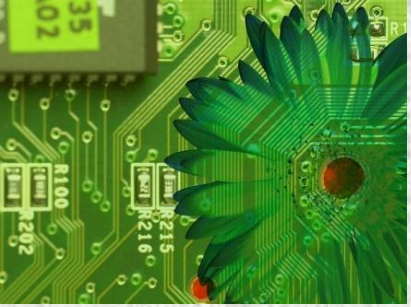
2	Conduct energy savings in office or building, especially at home, business area	• Turn off the PCs and laptops whenever are not used • Removing active screen savers • Turn off the lights and air conditioners after office hours
3	Conduct energy savings in transportation	• Use public transportations when possible • Reduce travelling



Supporting Actions: Improve the awareness of green ICT and Energy Savings

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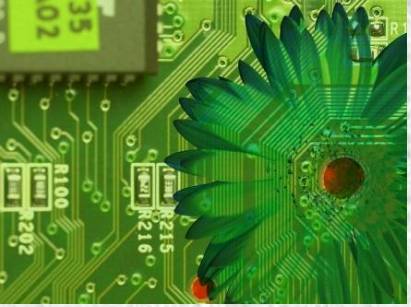
	Actions	Description
1	Develop and implement the related curriculum at schools and universities	• Give lessons about energy in all study levels • Conduct research in renewable energy in university level
2	Establish related forums for the community	• Establish Indonesia society/association for green ICT • Establish Indonesia green ICT research cennter • Organize the Indonesia green ICT conference • Organize the Indonesia green ICT workshop
3	Conduct Indonesia green metrics	• Develop assessment for Indonesia green effort • Assess every year



Supporting Actions: Ensure that Energy Saving Has Been Applied Well

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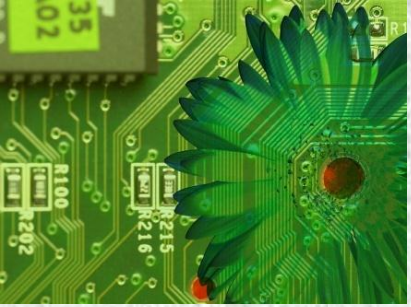
	Actions	Description
1	Conduct energy audit	• Conduct energy audit for enterprises regularly • Give incentive for the most optimal enterprise, e.g. tax reduction



Supporting Actions: Handle the Electronic Waste Carefully

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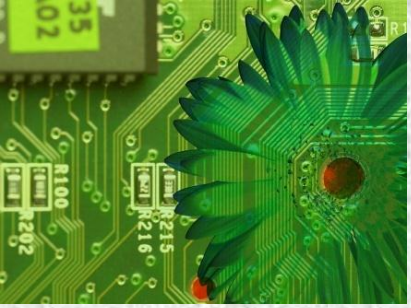
	Actions	Description
1	Reduce e-waste	• Propose and apply the green disposal procedures • Recycle the used electronics components



Green ICT Roadmap

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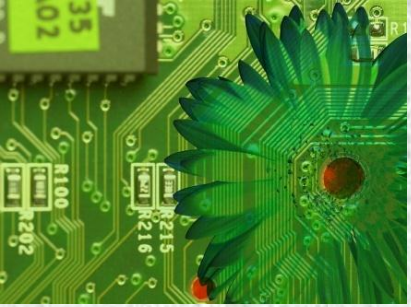
Strategies	2011	2012	2013	2014	2015
Green of ICT	**Develop high-efficiency and green BTS and data center**				
	Research and develop the alternative (renewable) energy				
		Standardize the BTS and data center			
	Use and develop the high-efficiency infrastructures and products				
		Facilitate ICT infrastructure sharing			
		Improve the utilization of fiber optics			
			Standardize the green ICT end products		
Green by ICT	**Optimize systems using ICT and develop green systems**				
		Develop green computing systems			
	Optimize the utilization of energy (green systems)				
	Promote and increase the utilization of green application				
	Improve and develop smart applications				
	Disseminate the online system applications				
Supporting actions	**Conduct energy savings in everyday actions**				
	Go paperless				
	Conduct energy savings in office or building, especially at home, business area				
	Conduct energy savings in transportation				
	Improve the awareness of green ICT and energy savings				
		Develop and implement the related curriculum at schools and universities			
		Establish related forums for the community			
			Conduct Indonesia green metrics		
	Ensure that energy savings has been applied well				
			Conduct energy audit		
	Handle the electronic waste carefully				
			Reduce e-waste		



Government Role in Gree ICT

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- Government should take a leading role in Green ICT and actively consider environmental factors as part of its ICT purchasing.
- Indonesian Government may endorse mandatory environmental standards for use in relevant ICT acquisitions.
  - A mandatory environmental standard refers to the application of an eco-label or criteria in agency procurement processes to achieve a minimum level of environmental performance.
  - The environmental standards assessed as mandatory should be described in the plan and implemented by Indonesian Government agencies in their ICT procurement processes.
  - The purpose of selecting mandatory standards for ICT acquisitions is to mitigate and/or minimize significant environmental impacts of ICT and/or significantly improve whole-of-government
- Government of Indonesia may provide an incentive for manufacturers to develop and produce more ecologically sustainable goods and services.



Government Role in Green ICT: Making Green Policy

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- Promoting Energy efficiency
  - 15-30% achievement target in all sectors

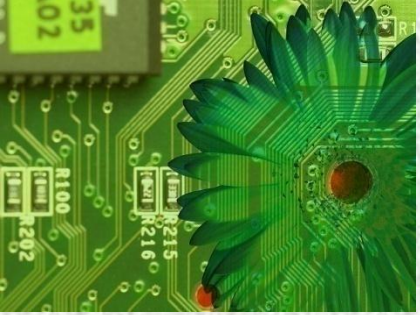
- Reducing Carbon Emission

  by 2020, Indonesia committed to reduce carbon emissions by 26 percent on its own, or 41 percent with the financial help from international donors

- Waste Management & Regulation

  incl illegal imported electronics wastes: PCs, monitors (hazardous wastes)

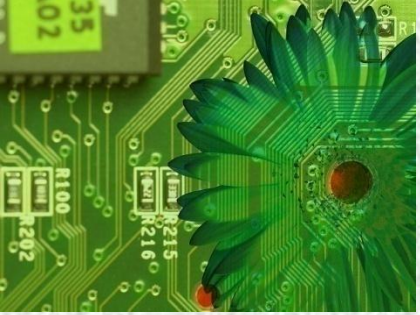




Government Role in Green Ict: Current Initiatives

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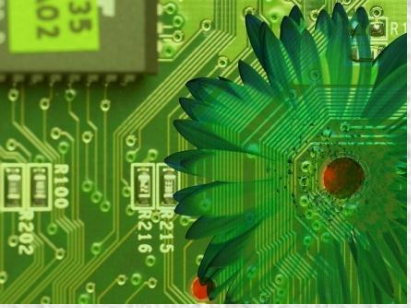
- Promoting and Disseminating Green ICT through seminars, exhibitions and media
- Education and awareness for public sector organizations, businesses and citizens to encourage a change of behaviour related to the use of ICT products and encourage people to use energy efficient equipment
- Regulation & standardization on Green ICT
- E-procurement & E-billing
- Reducing paper use in offices (paperless society)



Act to Support Green Technology

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- Government Regulation Nomer 52 Year 2000 stipulates in Article 6 clause (2) that telecommunication operator in building their telecommunication network shall comply with prevailing acts.
  - Prevailing acts means all Indonesian acts including environment conservation act.
- To implement such act, Ministry of communication and Information Technology, establish a vision in its strategic plan for 2010-2014 (Renstra 2010-2014):
  - "*Terwujudnya Indonesia Informatif menuju masyarakat sejahtera melalui pembangunan kominfo berkelanjutan, yang merakyat dan ramah lingkungan, dalam kerangka NKRI"* (Creating Informative Indonesia toward prosperous society trough sustainable ICT development, which is populist and environmentally friendly).



Conclusions

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- ICTs can contribute to combat climate change and its consequences by playing an important role in environmental protection and energy efficiency.
- Green ICT can be implemented not only in ICT sector itself but also in other economic sectors.
- Green ICT strategy and actions need a collaboration with government, ICT industries/institutions, operators, R&D, NGO, education institution and society.
- Partnership throughout the world and hand-in-hand cooperation are key success to implement future green lifestyles.


Thank you