




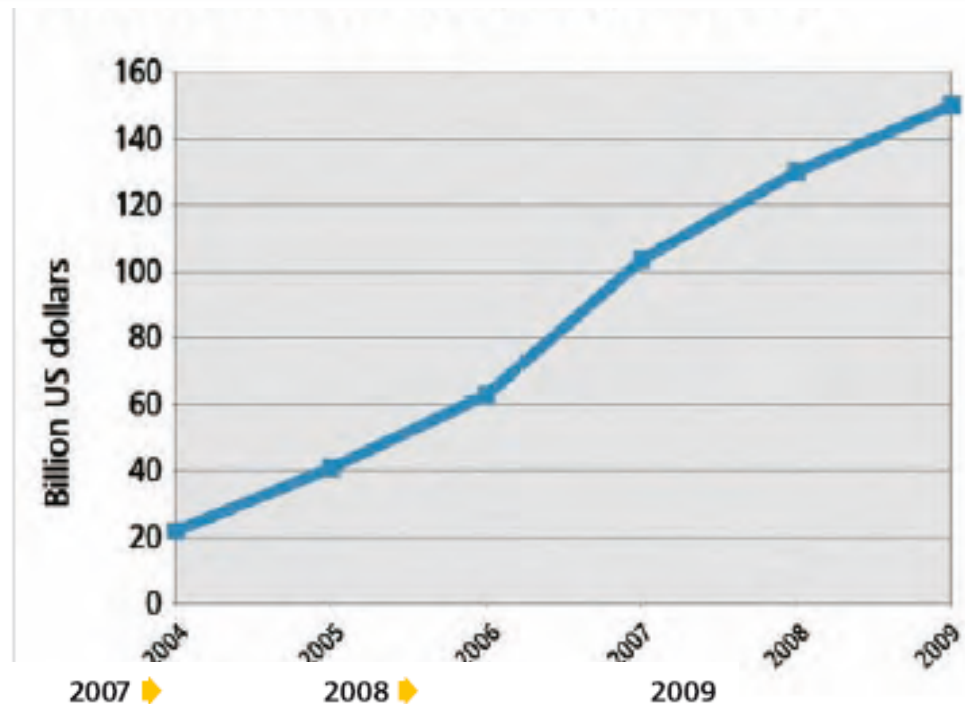
Roy Adair - CEO



PART I
Renewable energy
Growth: Hydropower
observations and
opportunities

Snapshots from REN21 report – Strong Renewables Growth

***REN 21 Global Status Report 2010:**
www.ren21.net/globalstatusreport/

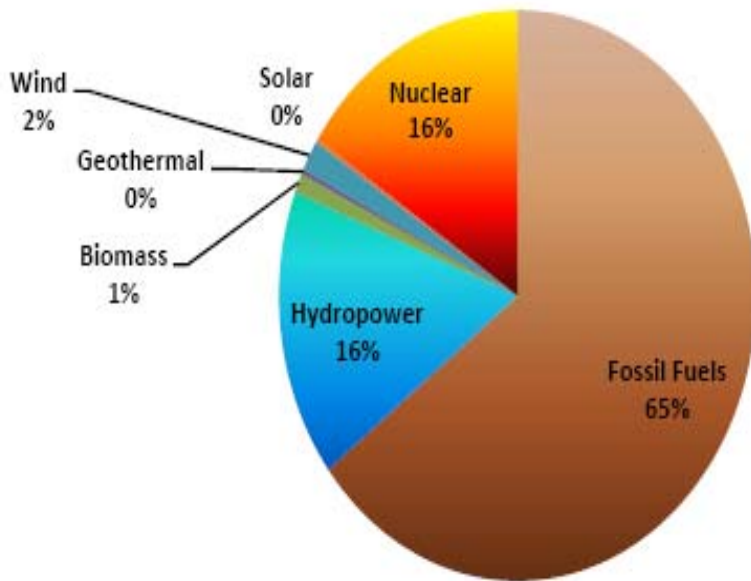


SELECTED INDICATORS

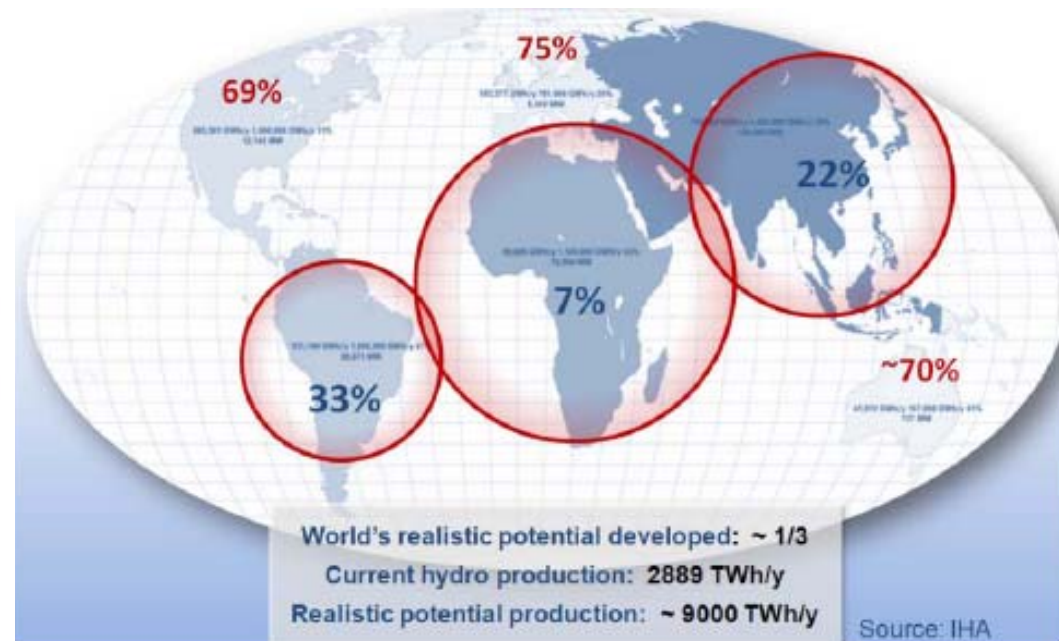
| | 2007 | 2008 | 2009 |
|---|-------|-------|-----------------|
| Investment in new renewable capacity (annual) | 104 | 130 | 150 billion USD |
| Renewables power capacity (including only small hydro) ¹ | 210 | 250 | 305 GW |
| Renewables power capacity (including all hydro) | 1,085 | 1,150 | 1,230 GW |
| Hydropower capacity (existing, all sizes) | 920 | 950 | 980 GW |
| Wind power capacity (existing) | 94 | 121 | 159 GW |
| Solar PV capacity, grid-connected (existing) | 7.6 | 13.5 | 21 GW |
| Solar PV production (annual) | 3.7 | 6.9 | 10.7 GW |
| Solar hot water capacity (existing) | 125 | 149 | 180 GWth |

Hydropower – Global Potential

- World Summit on Sustainable Development 2002 *Plan of Implementation* - *hydropower should be included in the drive to increase the contribution of renewable energy throughout the world*

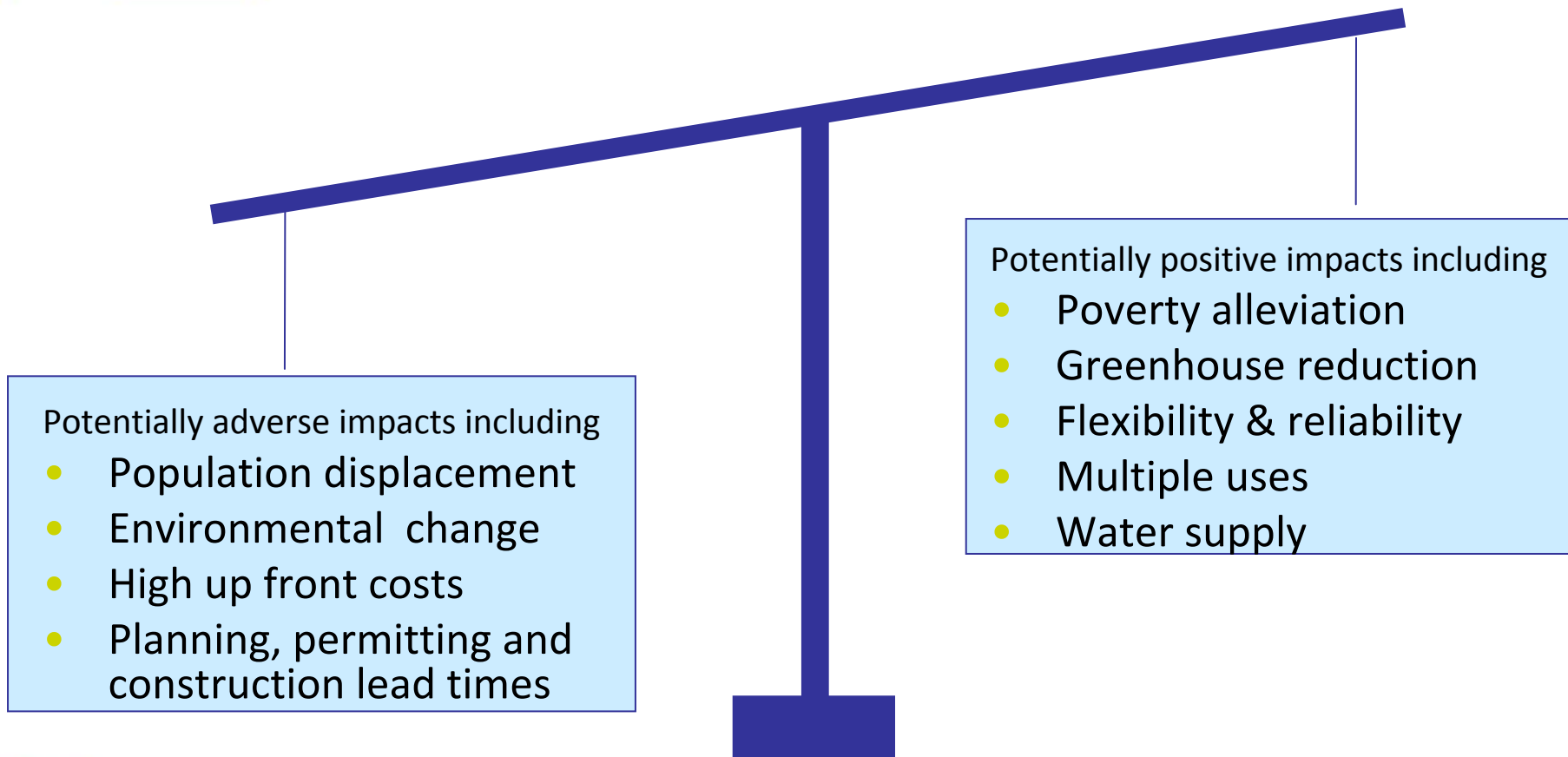


Source: IEA 2008



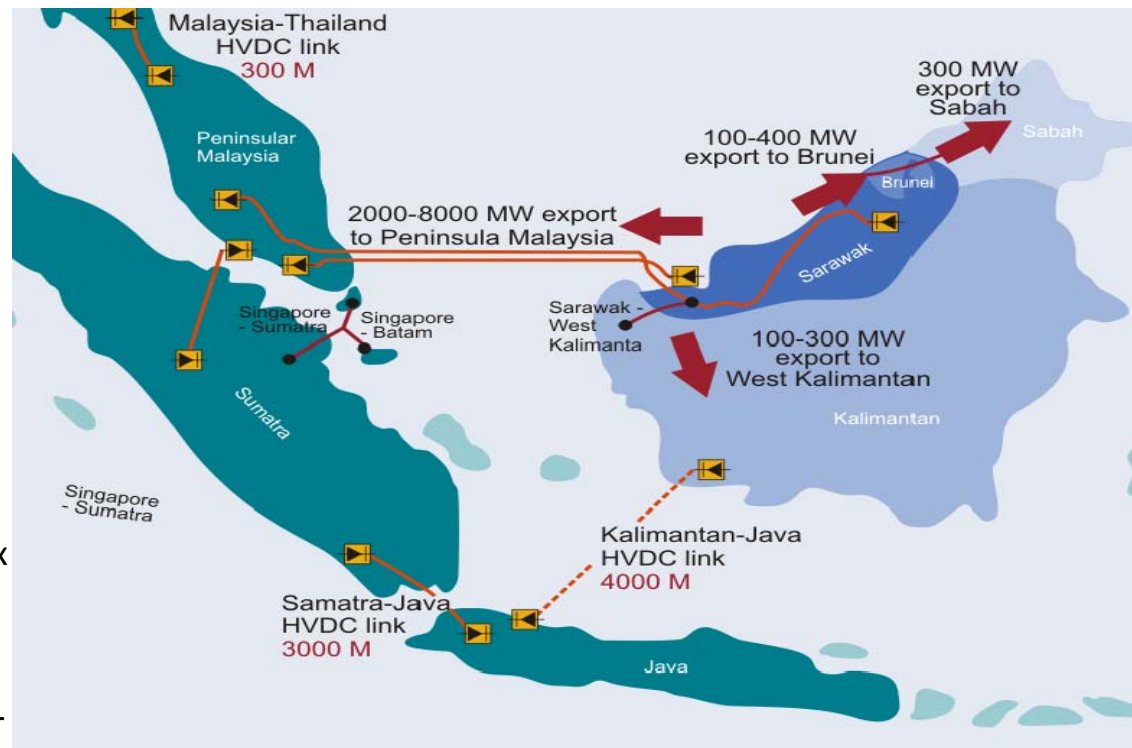
Source: World Atlas of Hydropower & Dams, 2002; IHA

Hydropower and the Sustainable Development Challenge



Sarawak A Regional Case Study - Sarawak Corridor of Renewable Energy (SCORE)

- **30 year strategic development plan** for optimal utilisation of natural energy resources.
- Plans to develop a long term hydro power system of 20,000 MW, consisting of over 50 sites to provide 87,000 GWh of energy.
- Endorsed by the Malaysian Federal Government and being implemented by the State Government of Sarawak.
- Sarawak has 70% of Malaysia's total exploitable hydropower potential, due to its abundant rainfall and favourable topography.
- Plans to achieve a balanced generation mix of 70% hydropower, 20% coal, 2% gas and less than 10% other renewables.
- Currently Sarawak has approximately 100 MW of hydropower installed, with another 3,344MW under construction.



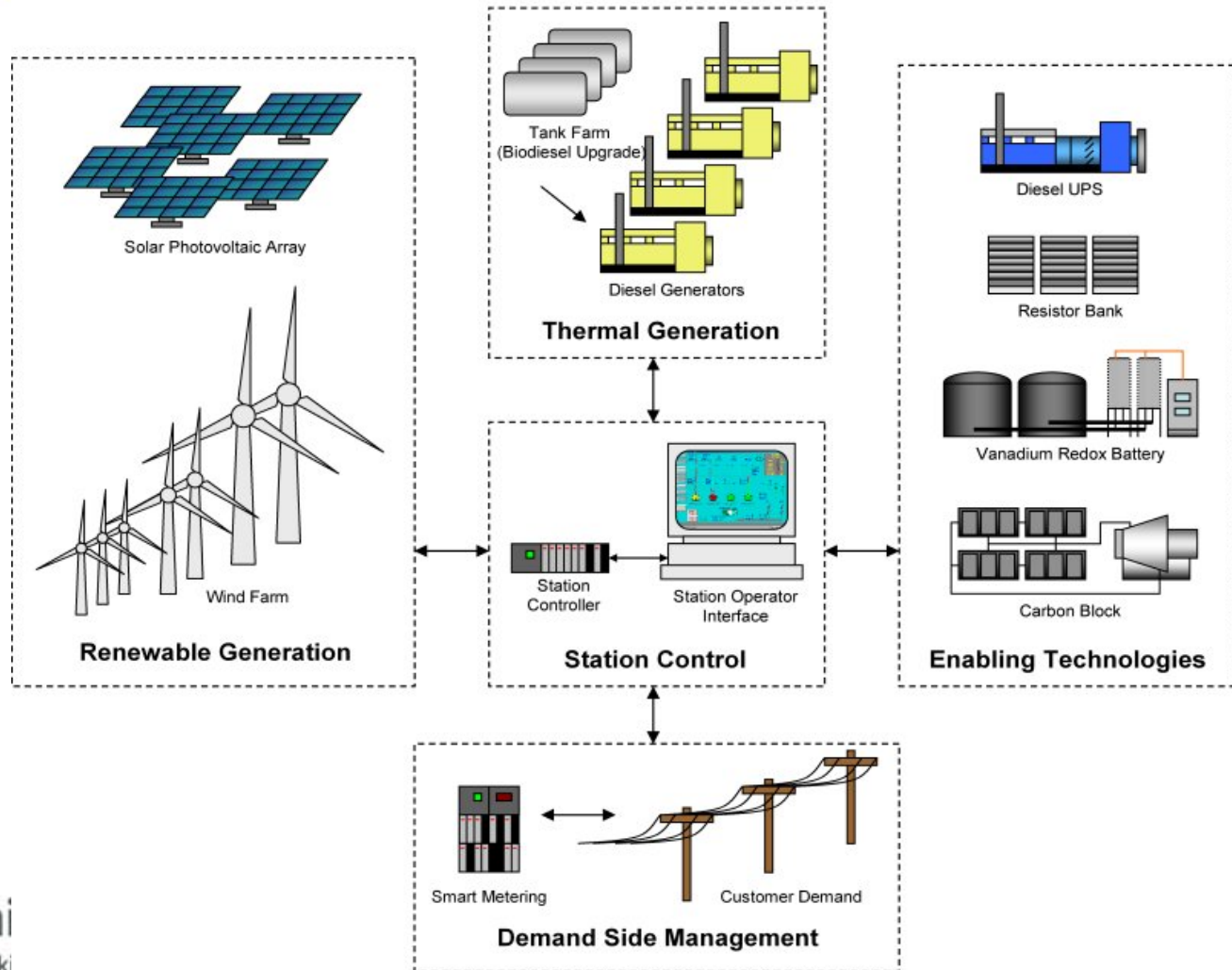
PART II

Energy Poverty, diesel alternatives: Bass Strait islands Renewable Energy Integration case study

Energy poverty - WEO 2010 pre-release*

- IEA, UNDP, UNIDO World Energy Outlook 2010 pre-release focus on energy poverty notes among other things:
 - today there are 1.4 billion people around the world that; lack access to electricity
 - **...a new financial, institutional and technological framework is required , as is capacity building in order to dramatically scale up access to modern energy services at the local and regional levels....**
- We need to refine and deploy solutions to move away from traditional biomass and diesel systems
- Off-grid RAPS are a step forward Hydro Tasmania believe in - the Bass Strait approach demonstrates available technologies can work:
 - Portfolio of innovative new and existing renewable energy technologies
 - Globally unique opportunity to demonstrate the integration of a portfolio of renewable generation, with enabling and smart grid technologies

King Island system



King Island – current status



Wind

- 2 Vestas V52 wind turbines
 - 850 kW output
 - 60 metres tall
 - Rated wind speed of about 50 km/hour
 - 52 metre rotor diameter
- 3 Nordex N29 wind turbines
 - 250 kW output
 - 29 metres tall
 - Rated wind speed of about 50 km/hour
 - 29.7 metre rotor diameter

‘Any Interested Partners Are Welcome To Come And See Our Approach’

Vanadium Redox Battery (VRB)

- 68 000 litres of electrolyte contained in four plastic tanks
- Six Sumitomo cell stacks
- Energy storage of 200 kW for four hours
- Peak short-term output of 400 kW

Solar

- Six SOLON Movers manufactured by SOLON AG, total rated power of approximately 100 kW
- Each Mover is capable of producing up to 16 kW in full sun conditions
- Precise 2-axis tracking of the sun to maximise power production
- Capable of withstanding strong winds by stowing away into ‘locked’ position

Thankyou

www.hydro.com.au