

Why scenarios ?

Investors and infrastructure



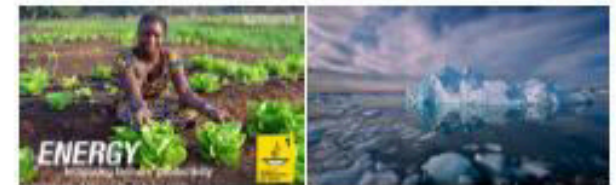
Policy makers & bodies



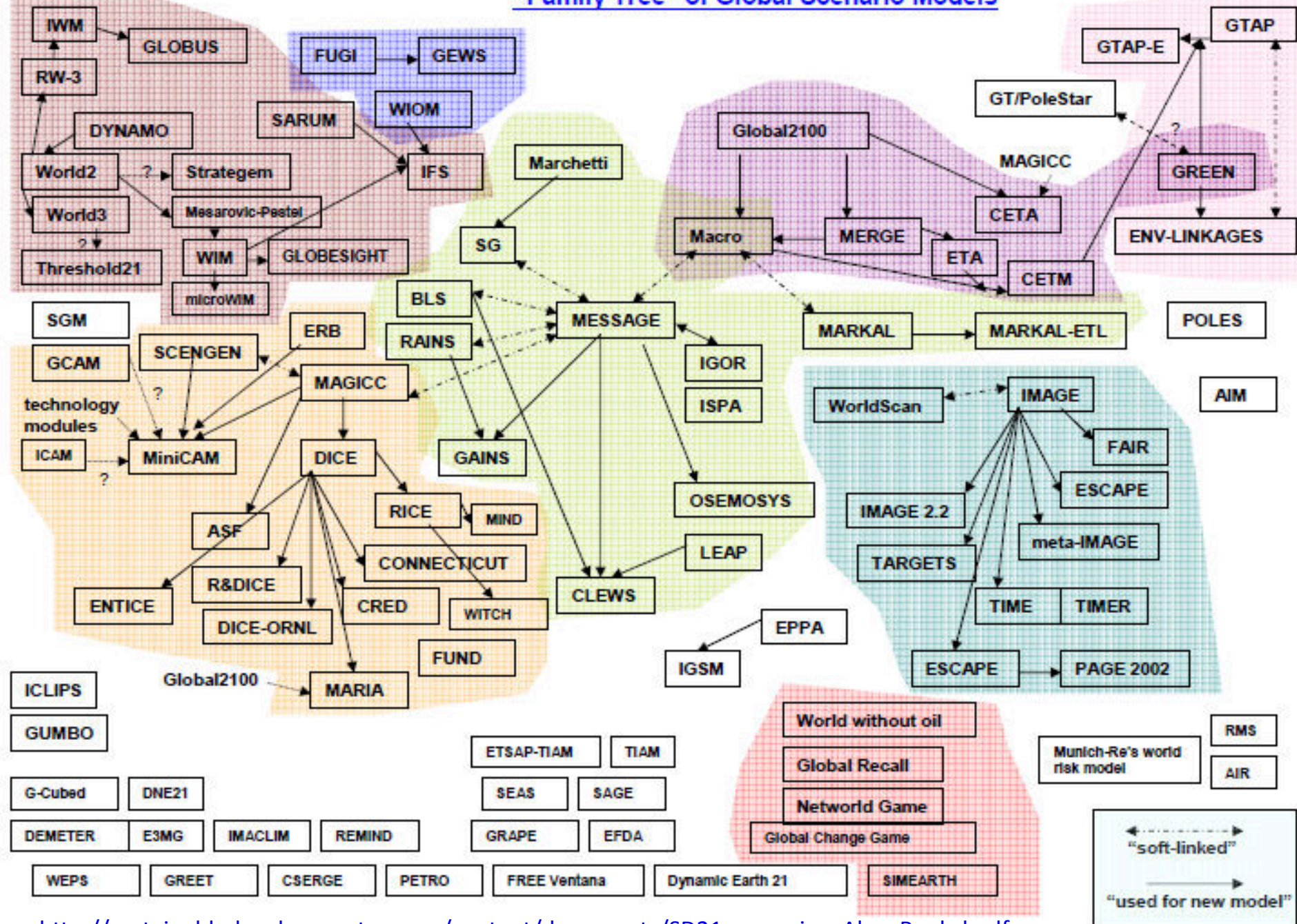
Consistent pictures of:

Big-ticket issues

- Earth system, social, economic dynamics
- Governance and resource allocation
- Building consensus
- Different futures from predictive to backcasting
- An art – not a science.
- However we need to take calculated risks ...



"Family Tree" of Global Scenario Models



Selected key issues



- Transparency and trust
- Communicating a consistent message
 - Our GHG schizophrenia
 - Clear mapping
- Mapping with policy levers
- Global trends, but national decisions
 - Translating to national needs
 - National sensitivities
- The sum of the parts ...
 - A move to integration
 - A complex system
- Challenges
 - Develop an inclusive process



Transparency science and scenario modeling

ft.com > world > europe >

Sign in Site tour Register Subscribe

Brussels

 Search
Advanced search

- Home
 - World
 - Companies
 - Markets
 - Global Economy
 - Lex
 - Comment
 - Management
 - Life & Arts
- Africa
 - Asia-Pacific
 - Europe
 - Latin America & Caribbean
 - Middle East & North Africa
 - UK
 - US & Canada
 - The World Blog
 - Tools

Last updated: November 6, 2011 7:44 pm

- Share
- Clip
- Reprints
- Print
- Email

Credibility of EU energy review questioned

By Pilita Clark

The credibility of a European energy review has been cast into doubt by experts who point out that long-term plans to cut carbon emissions are based on an economic model owned by a single Greek university that cannot be independently scrutinised.

Experts have "raised a host of questions" about how the European Commission's use of a non-transparent model could affect the energy review, according to a leaked report by energy specialists chosen by Brussels to advise on the forthcoming "Energy Roadmap to 2050".

The economic model, known as "Primes", is owned by the National Technical University of Athens and is designed to show how using different mixes of these

EDITOR'S CHOICE

MARTIN WOLF



America's fiscal policy is not in crisis

THE WORLD



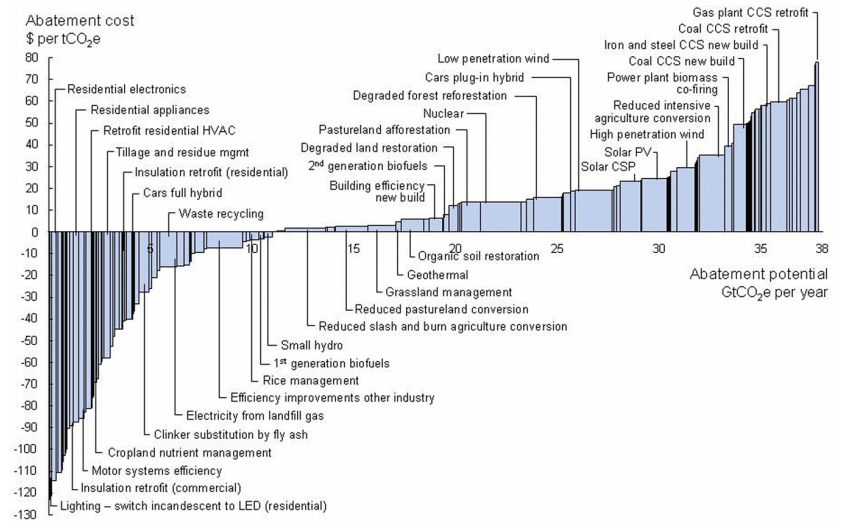
Desperately seeking Bouteflika

Communicating a consistent message

Our GHG schizophrenia

- The idea that 'society will pay more for energy for a better environment in the future' is a deficient characterization. We compare costs with some ethereal state. We should compare costs with costs, and be explicit about our uncertainty.

Global GHG abatement cost curve beyond business-as-usual, 2030



- *Two common mistakes:*
 - *There is the assumption that the future will look like the past.*
 - *The only cost often mentioned in many such studies is the cost of mitigation. Not the benefit of having to pay a lower cost than having to adapt to a dangerous future. To stylize, these tend to be kept in compartmentalized silos.*
- *Business as usual is probably not business as usual. A continuation of current trends builds debt that – according to our current understanding - humanity will pay. Our investments in the future need to be seen as investments with dividends quantified in the same terms. There is uncertainty around those dividends.*



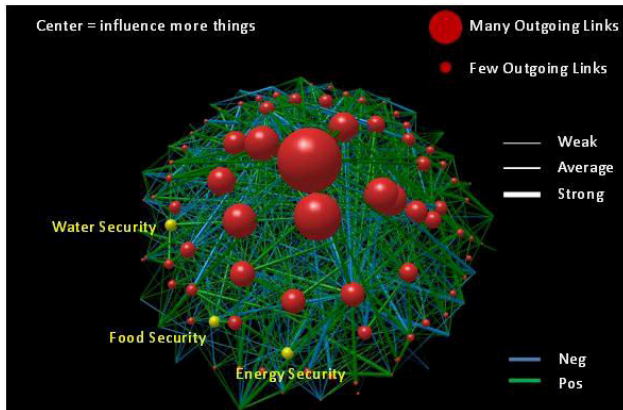
Energy-relation	Probable Impact	Ref	Energy-relation	Probable Impact	Ref
Climate Change					
Greenhouse gas emissions from burning carbon-based fuels	Strong	A	Lowering emissions in the energy sector (including carbon capture)	Strong	B
Deforestation (and natural habitat loss) due to wood used for heating and cooking	Local	C	Forestry management, alternative fuels (e.g. LPG) and banning charcoal	Local	C
More biofuels production causing deforestation	Strong local	E	Bio-fuel production regulation including so called 'sustainability criteria'	Strong regional	F
Ocean Acidification					
Increased atmospheric CO2 concentrations	Strong	A, C, E	Decreased atmospheric CO2 concentrations	Strong / local	B,D,F
			Extraction of carbon from seawater (counter-acting acidification) for synthetic fuel production	Limited	G
Stratospheric Ozone Depletion					
Increased biofuel production increasing fertilizer use				cal	J
Production, mainly from fossil fuels 'fixes' large quantities of the fertilizer.					
Nitrogen is taken from the air when fuel is burned to produce nitrogen-oxides				cal/regional	T
Increased biofuel production increasing fertilizer use					
Water use in energy production				rong	M
Water use in biofuel production					
Extensive pollution and ecosystem loss				cal/regional	T
Land use change for large-area energy production					
Effects of hydropower dams on ecosystems and hydrology	Local	Q			
Heavy pollution from fossil fuel extraction	Local/regional	R	Pollution standards abatement technology	Local/regional	T
Deforestation (and natural habitat loss) due to wood used for heating and cooking	Local	C	Sustainable energy for all	Local/regional	U
Rate of Biodiversity Loss					
Deforestation (and natural habitat loss) due to wood used for heating and cooking	Local	C	Forestry management, alternative fuels and banning charcoal	Local	D
Biodiversity loss due to biofuels production	Local	P	Bio-fuel production regulation including so called 'sustainability criteria'	Strong regional	F
Heavy pollution from fossil fuel extraction	Local	Q			
Heavy pollution from fossil fuel extraction	Local/regional	R	Pollution standards abatement technology	Local/regional	T
Atmospheric Aerosol Loading					
Fine dust and smoke pollution from fuel burning and processing	Local/regional	S	Pollution standards abatement technology	Local/regional	T
			Sustainable energy for all	Local/regional	U
Chemical Pollution					
Extensive pollution and ecosystem loss	Local/regional	R	Pollution standards abatement technology	Local/regional	T

Clear mapping:

- does not exist
- gaps between scenario approaches
- limited sets of goals represented
- limited sets of systems represented
- not all goals are equal
- boundaries versus softer targets

Mapping with policy levers

science and scenario modeling

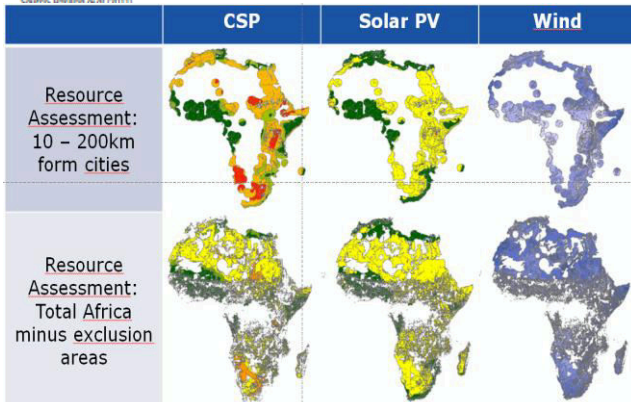
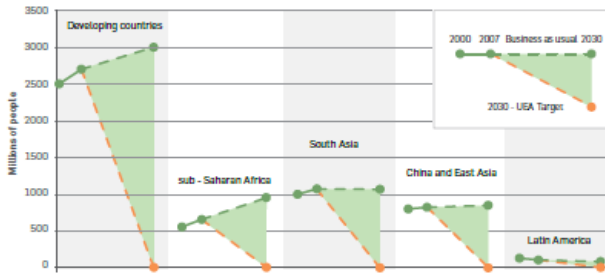


- According to recent scenario work urban planning can have of the highest impacts on sustainable development
 - Cities are the largest users of energy
 - The hubs of economic activities
- Unit costs for cleaner service supply are much lower in well designed cities than elsewhere
 - Larger ‘bang for development buck’ compared
 - To rural development strategies
- The trend of urbanization provides a strong opportunity to act now
 - Most of the world lives in cities and growing
- However poor / no planning can result in long lived infrastructure:
 - Locking people into unsustainable poor:
 - Energy use (and other resource, such as water) use
 - With a slow turn over rate
 - Social (slums)
 - Political (renewal policies)
 - and Physical (appliances, buildings and transport)
- Good planning can strongly reduce:
 - Costs, ecological footprint



Mapping with policy levers

science and scenario modeling



- Large opportunity, example: Africa:
 - Africa has a higher GDP & energy investment growth rate than any other continent
 - Some of the highest levels of renewable and other energy resource
 - Analysis shows large (profitable) investment opportunities
- But, Africa has: the lowest level of electrification and high levels of import based generation, why:
 - Low capital cost = dirty energy sources
 - Limited access to expensive energy-services and ecosystem damage
- Weak institutions and poor planning
 - Basic information and local capacity to synthesize this often lacking
 - Ability to rationalize these into implementable policy is weak
 - Understanding of government levers matching opportunities is limited
 - Little domestic related 'higher education' / research support
- With strong institutions
 - Clean(er) capital intensive options with lower investment risk
 - Lower cost (energy) services with rational mobilization
 - Equitable engagement with investors
 - Leverage GDP growth and investment at little marginal cost
- Strong resource interactions
 - Supply of food, energy and water are strongly interrelated
 - Systems are vulnerable to climate change
 - Threat: divergent development/Opportunity: efficient policy



Global to national

science and scenario modeling

- Decision makers have constituencies and urgent decisions to make
- The sum of local decisions develop the global picture
- Yet:
 - It is difficult for the national decision makers to incorporate global concerns
 - There is often no value associated with the 'global commons'

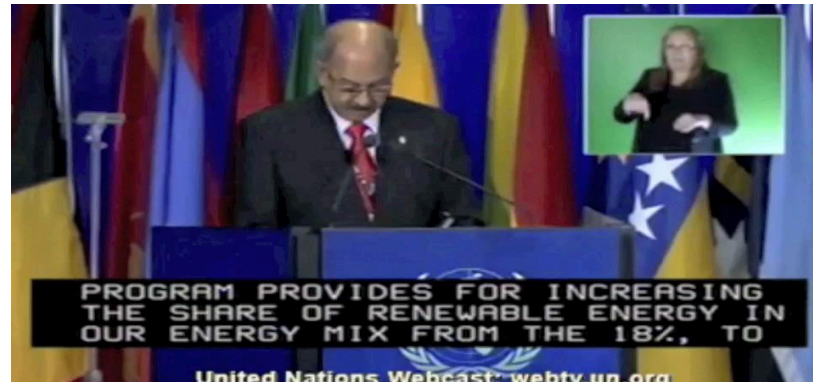
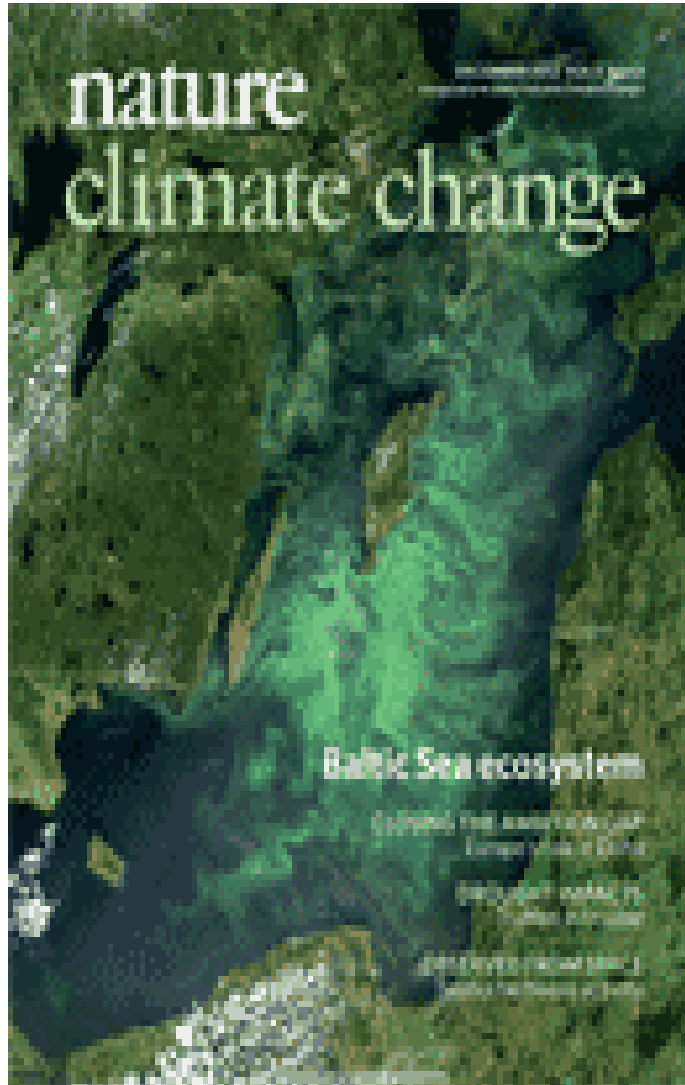
	Subnational	National	Regional and global
Project	EIA, ESIA, almost universal and mandatory		Ad hoc IA of cross-border projects
Programme	Isolated examples	SEA mandatory in Europe and selected other countries; CADO in selected developing countries	EIA and PIA by UN, development banks, and global funds
Policy			IA by OECD, UNEP, G20
Sector	Conventional sectoral planning	Conventional energy and infrastructure planning	Many energy, land-use, and water models.
Multi-sector	Significant number of academic applications	Few examples. CLEWS	Moderate number of IAs



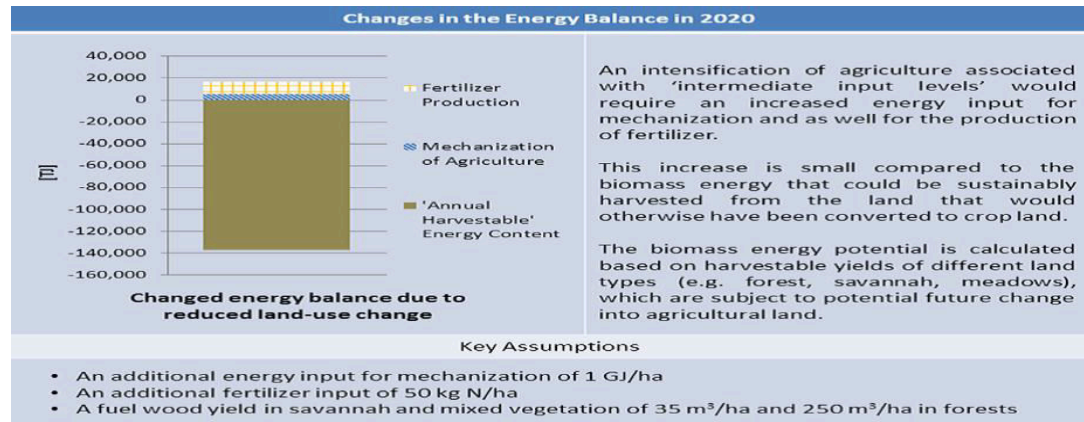
The sum of the parts

Navigating the nexus with sustainable development CLEWs: climate, land-use, energy and water strategies...

The danger of secoral goals ... efficient integration



<http://webtv.un.org/search/mauritius-general-debate-3rd-plenary-meeting-rio20/1700992573001?term=Rio%2020/>



An inclusive process

A clear convening agenda is needed

- **Standardized data, indicators and scenarios**
 - Benchmarking
 - Rationalization effort
- **Accessible open toolkits and analysis**
 - Review and revision
 - Adoption and Adaption
 - Mapping
- **Transparent assessments to improve:**
 - Integrated development with clear 'goals'
 - Economic efficiency
 - Affordable access to services
- **Multi-service delivery methodologies**
 - Consistent: lower cost
 - Isolated: counter productive
- **Policy relevant evaluation of ecosystem services**
 - To negotiate common resource management
 - Support short term decision with long term consequence

Metrics: what to measure, what are goals, in a complex system

Perspective		Consensus building actions						Policy maker concern		
		Actions								
		SD Energy-related indicators	Energy assessments	Promoting economic efficiency	Access assessments and support	Ecosystem assessments	Food water and energy nexus	Access to adequate services	Energy system dynamics	Interactions with other systems
		A.	B.	C.	D.	E.	F.	I.	II.	III.
Goals and strategy	1	Empower the poor	•	•	•	•			•	
	2	Security first	•	•					•	
	3	Oh behave	•	•		•	•		•	•
	4	Development first	•	•	•	•			•	•
Means and broad policy	5	Biofuel is bad	•	•			•	•		•
	6	Energy revolution	•	•					•	
	7	Sustainable energy technologies	•	•					•	
	8	Nuclear renaissance	•	•					•	
	9	Anti-Nuke	•	•					•	
	10	Free the market	•	•	•				•	•
	11	Leverage learning	•	•					•	
	12	The polluter pays	•	•			•			•
	13	The prime movers pay	•	•	•		•			•
	14	Basket case	•	•	•		•	•	•	•
Context and limits	15	Energy efficiency	•	•	•				•	•
	16	Economic and financing limits	•	•	•				•	•
	17	Peak oil	•	•					•	
	18	No limits	•	•			•		•	•
	19	Destroying the global commons	•	•			•	•		•
	20	Planetary boundaries	•	•			•	•		

