The Clean Development Mechanisms (CDM)

What is it?

And how can it be used to promote climate protection and sustainable development?

World Bank Institute Distance Learning Course: “Climate Change: An African Perspective”, 24 September 2002.

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What to achieve today?

- Know about the CDM
- Understand CDM project opportunities and resources
- Study a CDM project example

Knowledge about the CDM

The Kyoto Protocol & CDM

- 39 OECD/ EITs (Annex I) agreed to reduce their GHGs by 5.2 % below 1990 levels in 1st commitment period 2008 - 2012
- How to work together with Developing Countries to cost-effectively implement the Protocol?
- Creation of the CDM to allow trading of Certified Emission Reductions
- Value of global trade: estimated at US$ 3-10 billion/yr

Objectives of the CDM

- To assist developed countries in meeting their targets cost-effectively
  - Through the trade of certified emission reductions (CERs)
- To promote sustainable development in Developing Countries
  - Through projects that have global and local environmental and social benefits
- No commitments for DCs
  - Through accepting energy usage and emissions in the absence of the CDM

What is the idea of the CDM?

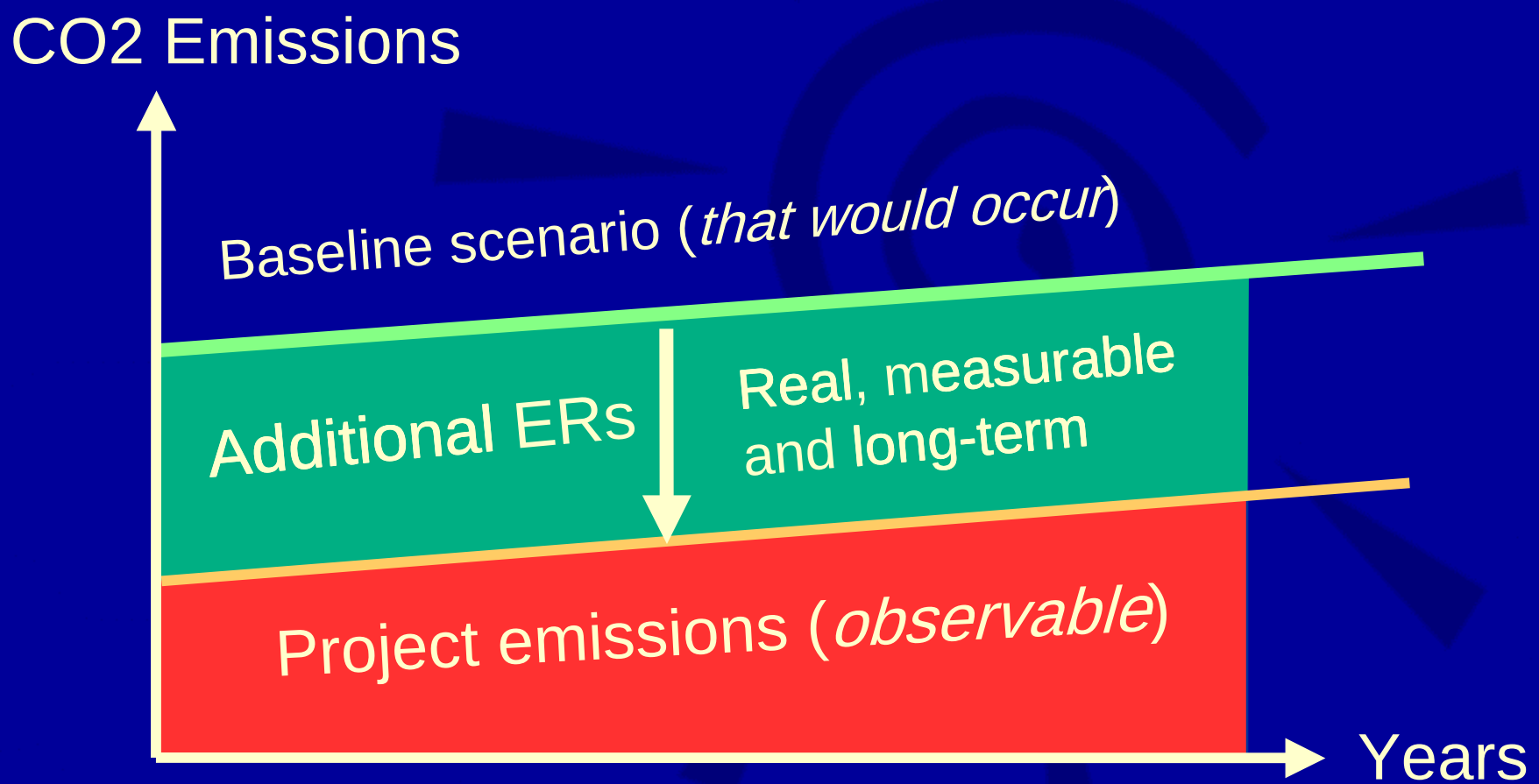
- *Reduce* GHG emissions in one country to permit an *equivalent* quantity of GHG emissions in another country, without changing the global emission balance.
- Emission Reductions must:
  - Create *real*, *measurable*, and *long-term* benefits related to the mitigation of climate change.
  - Be *additional* to any that would occur in the *absence* of the certified project activity.

What is Additionality?

- "Additionality" is the key eligibility criterion for CDM projects.
  - You must do something that you wouldn't have done without the CDM
- Interpreted as "environmental additionality":

Emission Reductions
=
hypothetical baseline emissions
– effective (project) emissions

How do we think about additionality?



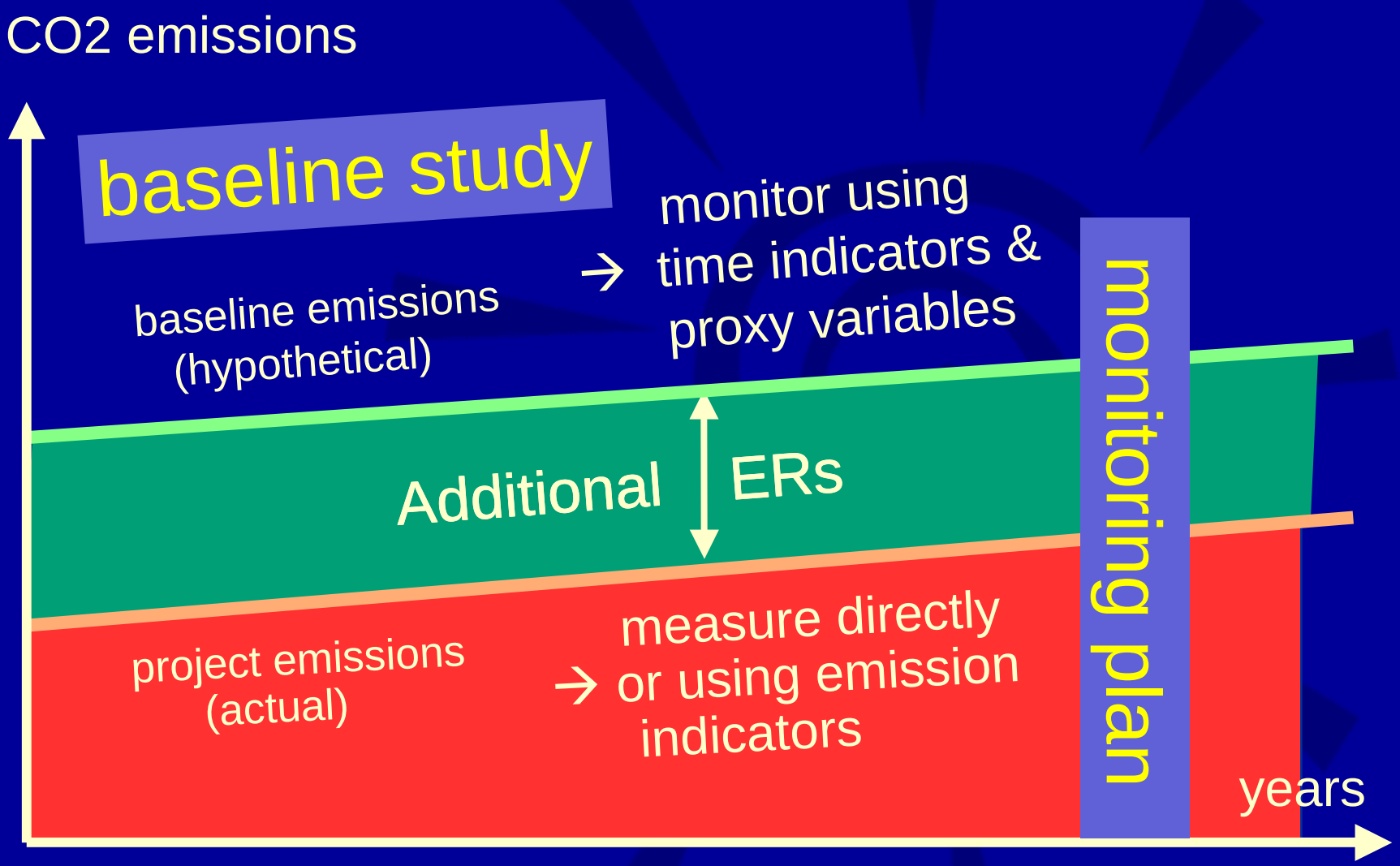
How do we think about baselines?

- A baseline is
  - a methodologically derived scenario
  - that describes
    - the most likely course of action and development over time, i.e.
    - the situation that would most likely have prevail without the CDM,
    - not simply business-as-usual,
  - and which allows to assess the emissions that would have occurred in this scenario.

Some Baseline Methods

- Project-by-project methods
  - Investment / financial analysis
  - Scenario analysis / barriers
  - Control groups
  - Expert opinion
- Standard-oriented methods
  - Sectoral baselines, emission factors, benchmarks,
  - default and multi-project baselines, ...
- Simplified methods for small projects

How to measure ERs?



Understanding CDM Project Opportunities and Resources

What are the criteria for CDM projects?

- Sustainable development
  - Host country criteria
  - Environmental Impact Assessment
  - Stakeholder consultations
- Emission reductions
  - Environmental additionality
- Project viability
  - Technologically proven
  - Financially sound
- Host country approval
- Project validation and registration

CDM project documentation

- Project Idea Note, Project Concept Note
- Project Design Document (incl. Baseline Study, Monitoring Plan, ER Projection)
- Validation Report and Opinion
- Emission Reduction Purchase Agreement (ERPA)
- Letters of Endorsement, Approval, Intent etc.

Who can help you to develop a CDM project?

- World Bank Carbon Finance Unit
- Dutch CERUPT program
- Development NGOs and consultants
- UN Organizations (UNDP, UNEP, UNIDO)
- Bilateral development organizations
- Foreign companies

Why is the World Bank involved?

James D. Wolfensohn, 1997:

"Continued global warming is in nobody's interest, but the simple facts of the matter are that developing countries will suffer the most damage, and their poor will be at an even greater disadvantage. … … … …

… I see the Bank's role in climate change as providing every opportunity to developing countries to benefit from the huge investment OECD must make in reducing climate change"

World Bank Carbon Finance Instruments

- **Prototype Carbon Fund**
  - US$180 million for carbon purchases from a variety of projects and countries
- **Netherlands Clean Development Facility**
  - US$30 million annually in CDM projects for 2002-2005
- **Community Development Carbon Fund**
  - US$100 million for 1st CDCF
  - For small-scale projects in developing countries only
  - Carbon plus sustainable development co-benefits
  - Higher quality and price range
- **Bio-Carbon Fund**
  - Develop and pilot business models for land-use and forestry projects

What can the CDM do for you?

- Attract foreign investment to countries engaged in the trading CERs
- Increase the profitability of cleaner more efficient technology in energy, industry, and transport sectors
- Clean up waste management operations
- Improve land-use strategies and practice
- Contribute to sustainable development of the host country

Impact of Carbon Finance on Project Financing ($3/tCO2)

Technology	ΔIRR
Energy Efficiency - District Heating	~2.0
Wind	1.0 -1.3
Hydro	0.8-2.6
Bagasse	0.4 – 3.6
Gas Flare Reduction	2 – 4
Biomass with methane kick	2 - 7
Municipal Solid Waste with methane kick	> 5.0

Project (not equity) IRR

Note: data are preliminary

Studying a CDM Project Example

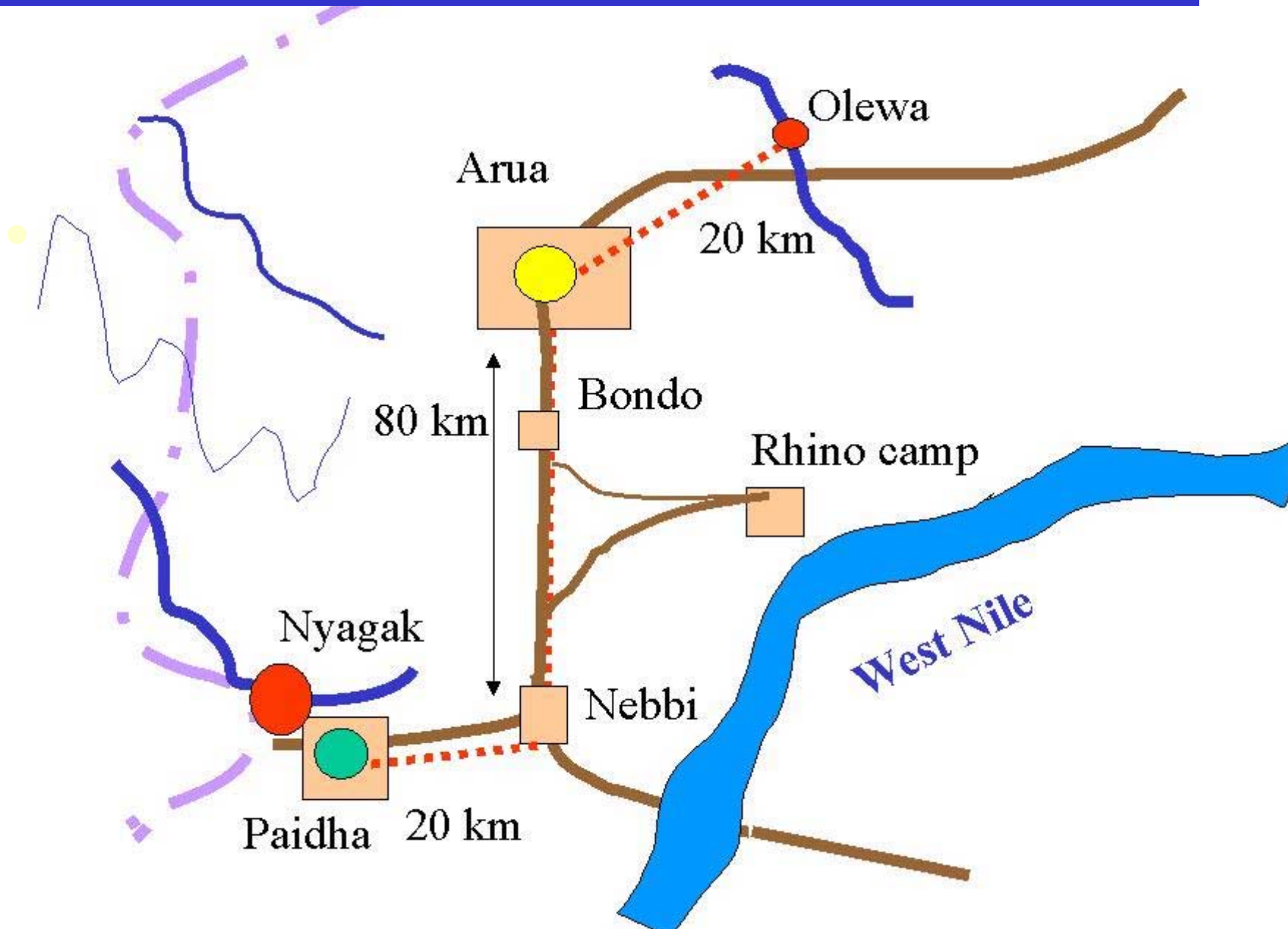
Uganda:
West Nile Electrification Project

Energy for Rural Transformation

Objectives

- Reduce rural poverty
  - Non-farm income generation and job creation
- Improve rural quality of life
  - Facilitate health and education services
- Develop renewable energy
  - Use local resources the development of which protects the global environment

The West Nile Electrification Project



The Business as Usual Situation

- Isolated region – not connected to the national power grid
- Recent fast economic growth
- Inefficient local power supply
  - 4 hours of diesel-generated power
  - Less than 1,000 connections
  - Over 200 individual diesel generator sets & engines
- Security issues

West Nile Electrification Project

Technology:
Run-of-river hydropower

Cost:
~ $20 mil.

Products:
reliable power, ERs

PCF Project

Outcomes:
Investment risk decreases, power rates decrease

PCF adds $3.5 mil. to project revenues

Outcomes:
Poverty decreases, Environmental Sustainability increases

Baseline scenario

inefficient old diesel, private gensets

up to 1$/kWh, unmet demand

unreliable high-cost power for few consumers

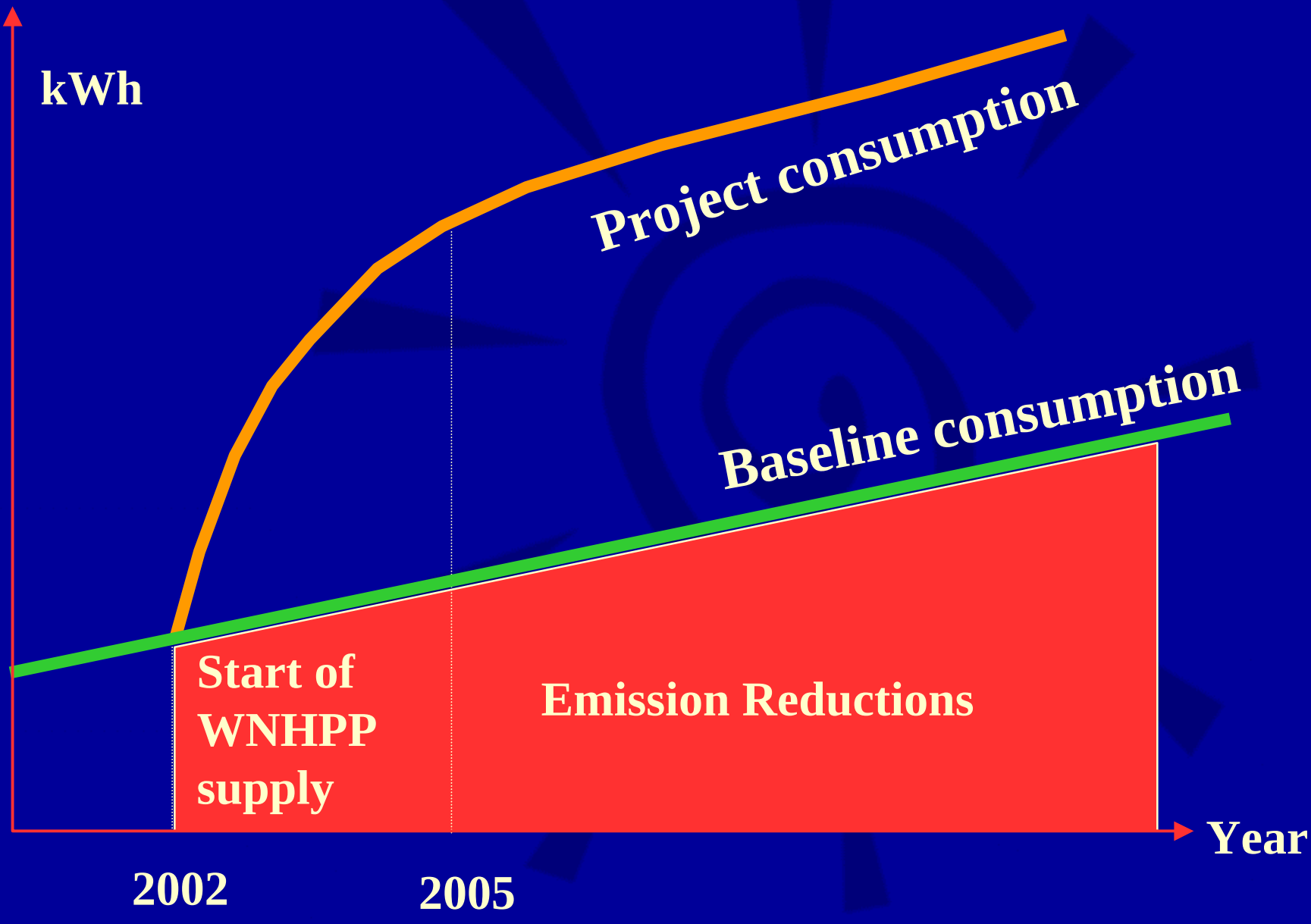
Main Challenges

- Our first CDM project in Africa.
- Develop CDM methodology in line with international discussions.
- Develop common understanding between PCF and Government.
- Coordinate PCF components with “underlying” project.
- Manage and structure risks – investment risks, baseline risks, CDM policy risks, PCF portfolio risks.

Project Baseline

- Baseline method: Risk-based scenario / barrier analysis
- Baseline / project alternatives:
  - Interconnection with main grid –> unlikely in near future due to risks and security issues
  - Local hydropower development –> only possible with major government / donor intervention due to risks and affordability
  - Business as usual –> no barrier, although expensive for households ➔ the baseline scenario

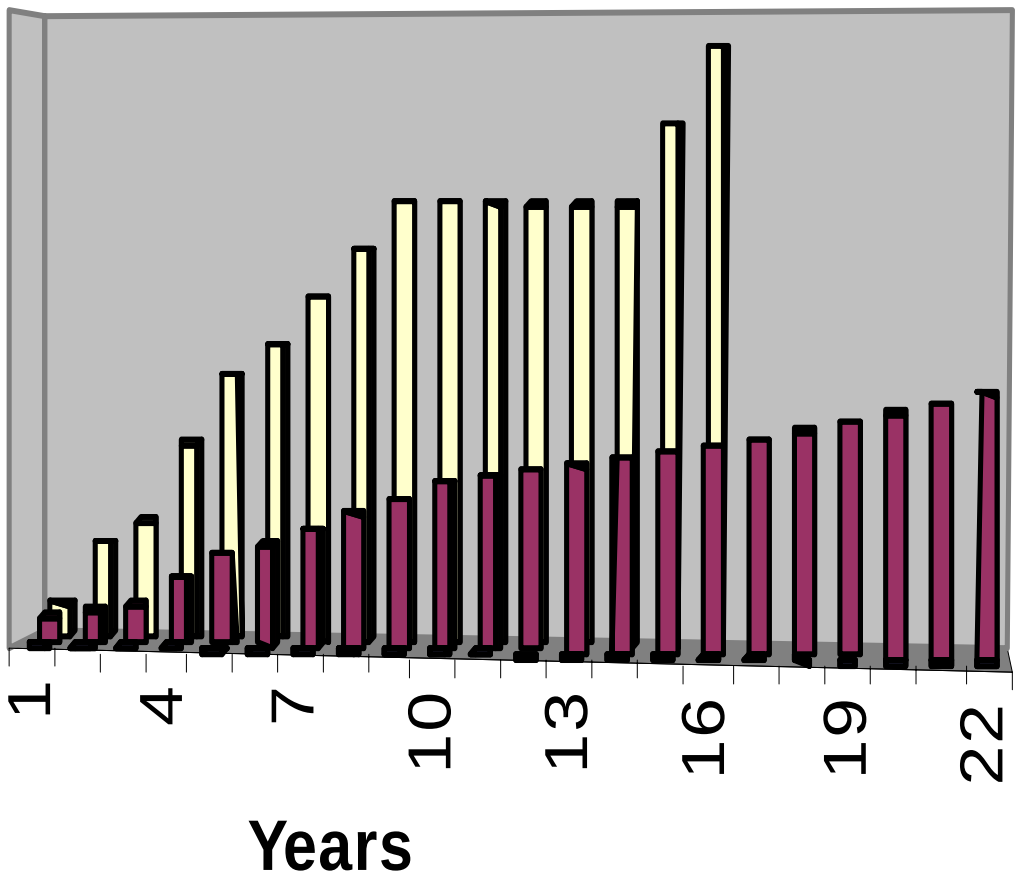
Power Consumption Growth



Key ERPA obligations

- PCF agrees to:
  - purchase 1.3 million t CO2 for US$3.9 million through 15 years (calculation price: US$3).
  - make annual payments to Project Entity (total US$ 3.5 million, net of costs) after verification and receipt of certificate
  - partially insure Project Entity through fixed delivery and payment schedule.
- Project Entity agrees to:
  - carry out project, implement monitoring plan
  - give PCF exclusive rights to verify
  - share additional ERs with PCF

Delivery and Payment Schedule



Looking for more information?

http://www.PrototypeCarbonFund.org