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Energy Agency

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Assessing the Market for Renewable Energy

An IEA Methodology (draft)

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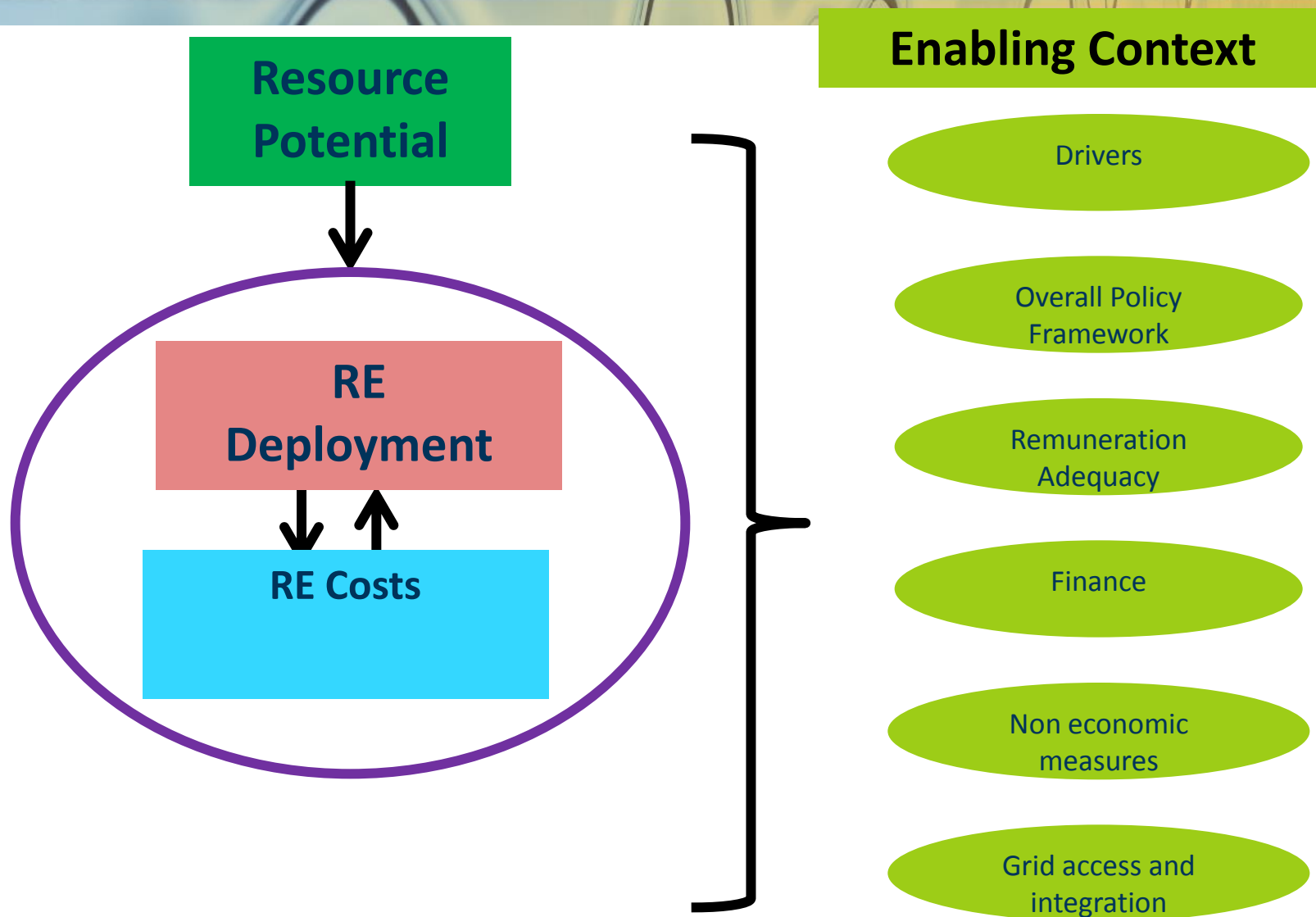
Istanbul, Turkey

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- Builds on other assessment methodologies (e.g. WB RISE)
- Potential to cover electricity, heat and transport
- Covers financial issues in more detail
- Scoring of each factor via objective criteria
- Traffic light system
- No overall score since
 - factors not additive and weighting is arbitrary
 - one factor can kill deployment

What sets the pace and cost of RE market development

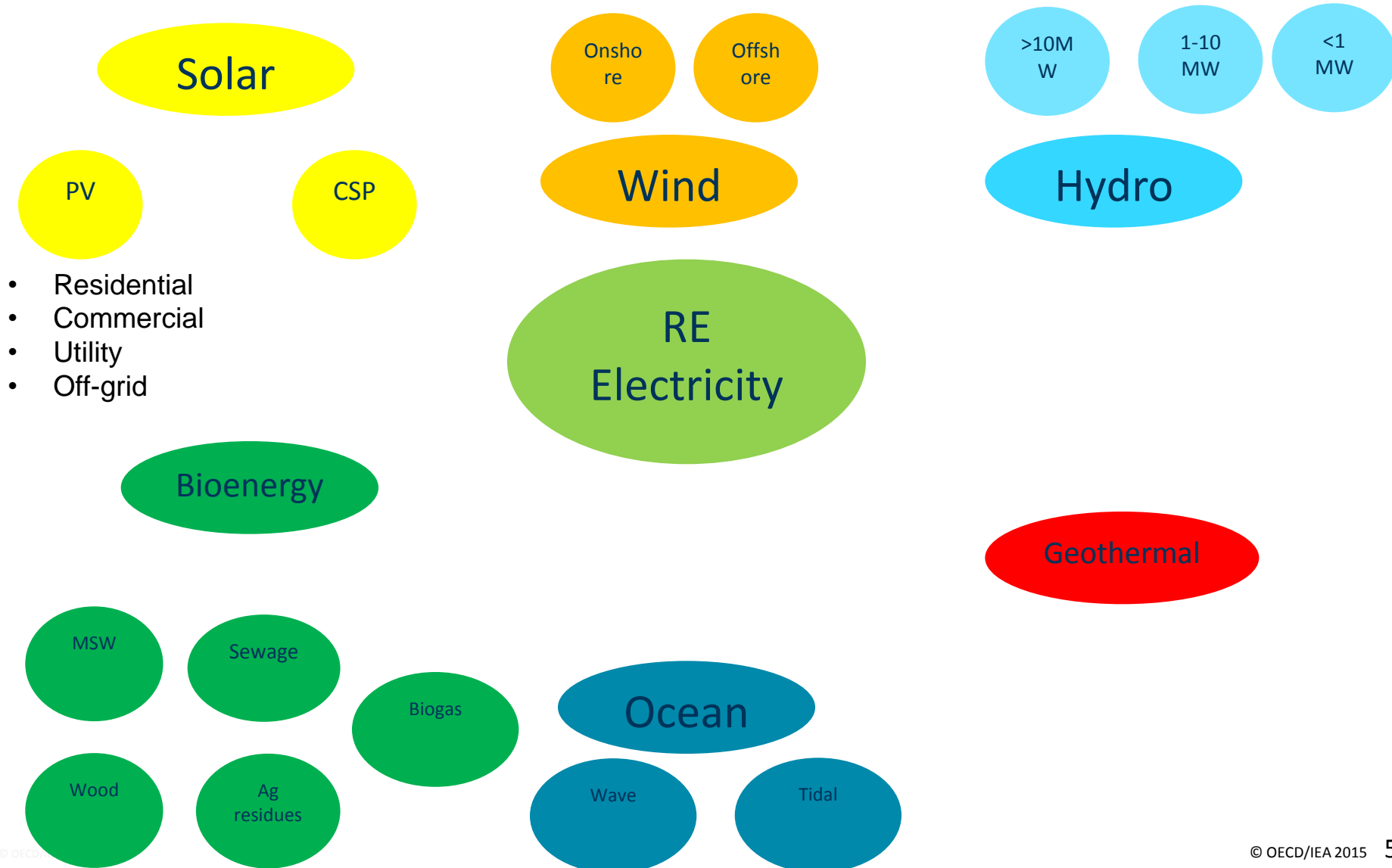


Major steps



- 1. Identify priority technologies and market opportunities in a country**
- 2. Look at levels and rate of deployment and costs of energy generation and compare with local and international benchmarks**
- 3. Review enabling framework to identify barriers and best practice examples**

Technology Priorities – RE Electricity

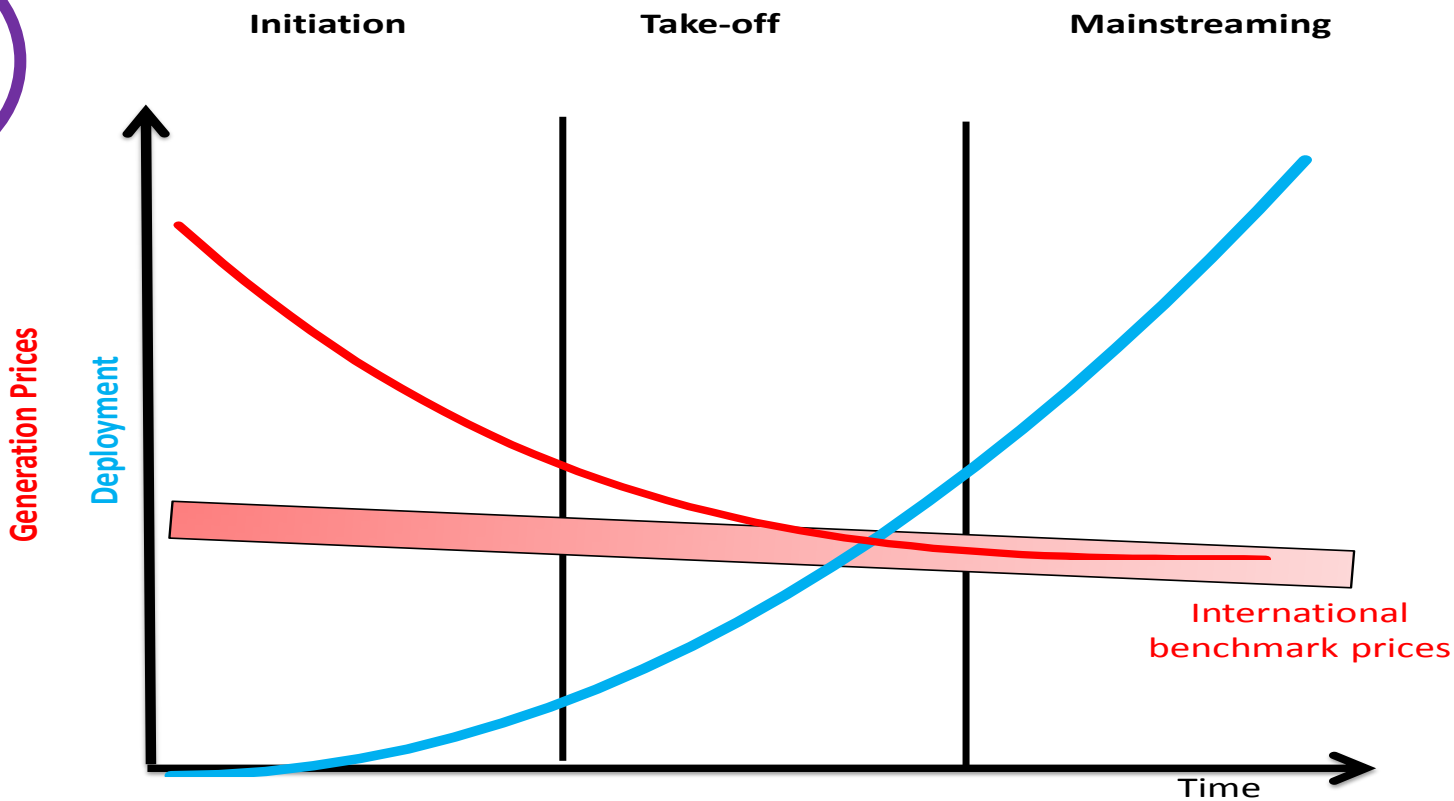
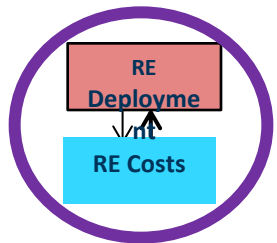


- 1. Is there a suitable resource to enable significant and cost competitive deployment?**
 - Is there a good physical resource?
 - Is there a well researched resource assessment
 - What fraction of resource is already exploited?
- 2. Leader or follower?**
 - Is the technology widely deployed globally?
 - Is there willingness to invest in new technology development and deployment?

Key Criteria

How is the market growing?

How much does it cost?



Where on the deployment journey?

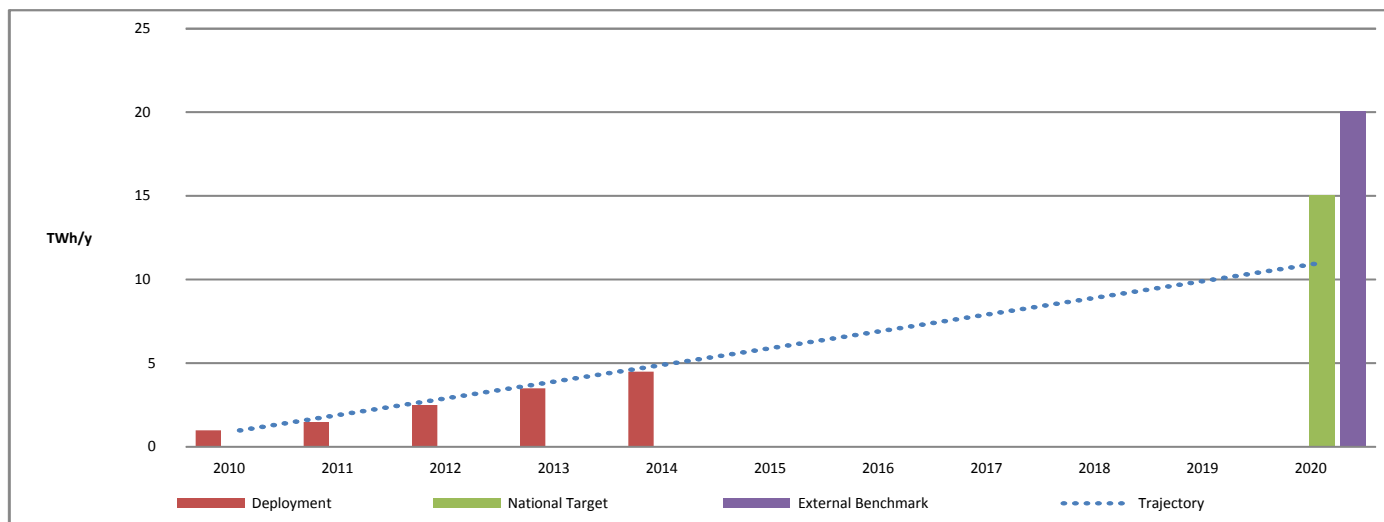
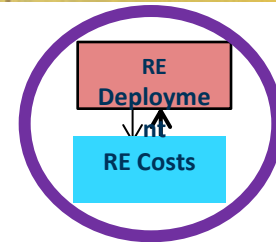
Deployment

Is the market growing in line with expectations?



■ Level of deployment

- Generation and growth rate
- National target?
- International or regional benchmarks?

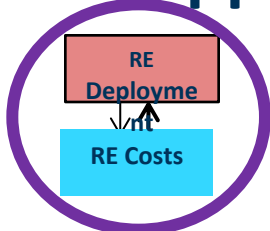


Cost of RE – National Perspective



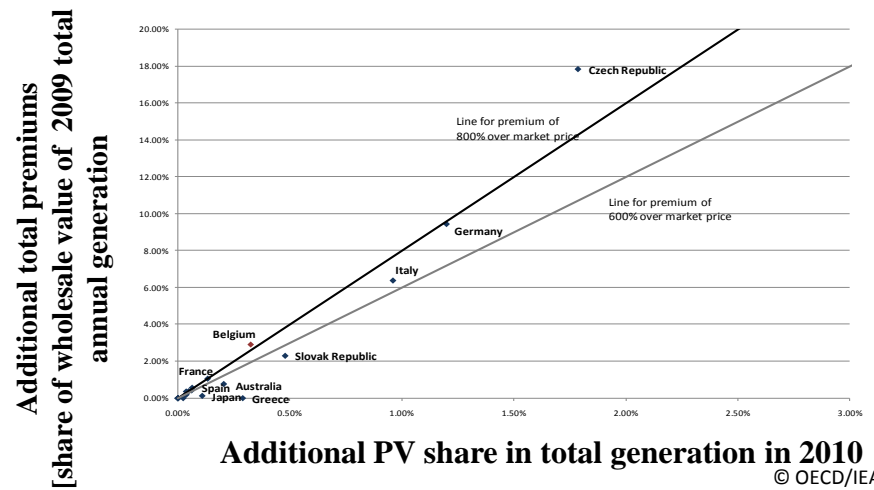
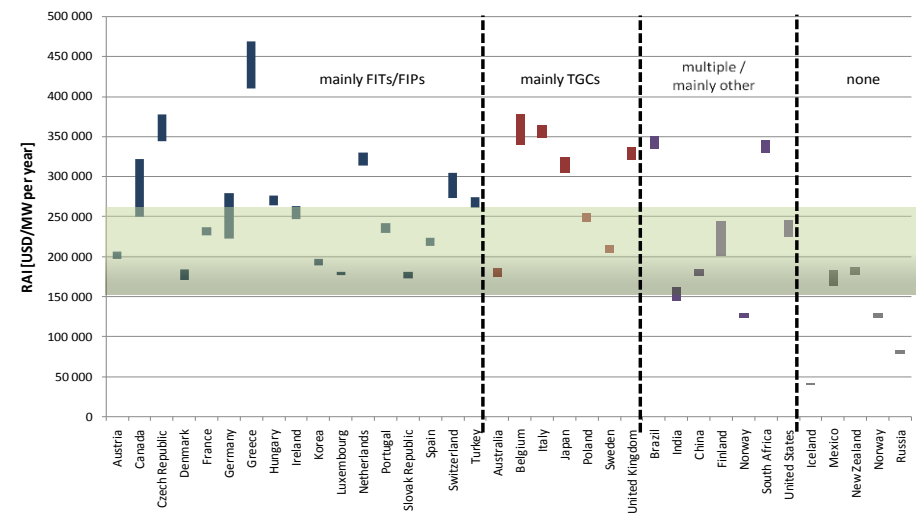
How do costs of RE compare internationally?

Are support costs affordable?



- Price of specific RE source
- Benchmark cost (regional, global)
- Comparison with alternative supply?
 - Cost of support as % of market cost
 - Impact on subsidies or taxes

Onshore wind: Remuneration Adequacy Indicator



Drivers

How can RE contribute to national energy goals?



Enabling Context

- Is there a specific ghg target?
- Is local air quality a priority?
- Is demand growing?
- Is energy access an issue?
- Energy security?
 - Importer?
 - Dependence on particular sources
- Economic development
 - Potential to increase value of exports?

Overall Policy Framework



Enabling Context

- **Is RE included in the national energy plan?**
- **Are there clear targets for short, medium and long term?**
- **Is there a credible and detailed action plan?**

Can finance for projects be made available at reasonable rates?

Enabling Context

■ National Factors

- Ease of doing business
- Country credit rating
- Currency volatility

■ Debt and equity finance available locally?

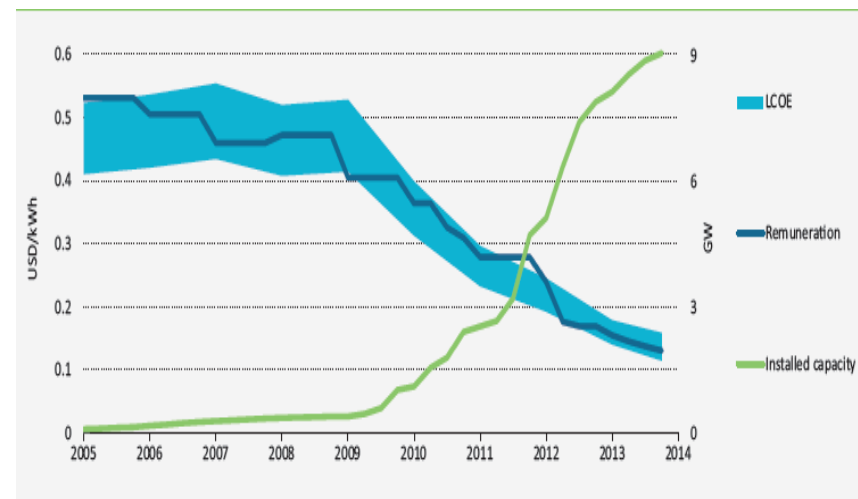
■ Are national or international development banks active?

Remuneration – Developer Perspective



Enabling Context

- Are clear and predictable remuneration levels in place?
- Are these sufficient to stimulate investment (i.e. remuneration > LCOE)?
- Is the off-taker reliable?
- Are there clear indications about future market?



Non economic measures

Are measures to tackle non economic barriers in place?



Enabling Context

- Is permitting system transparent and efficient?
 - Is guidance on permitting available?
 - Are permitting times monitored?
 - ◆ How long does permitting take?
 - How many agencies involved?
- Is a supply chain in place?
 - Are key components manufactured locally?
 - Is there local experience of installation and maintenance?
- Are standards or certification in place?
- Is there a skills base?
 - Is there a recognised centre of expertise?
 - Is education and skill training under way?
- Is there a public information campaign re renewables?

Grid access and integration

Is there fair grid access? Are steps in hand to integrate renewables?



Enabling Context

Initiation

- Is grid access allowed?
- Are grid connection costs transparent?
- Are renewables included in grid development plans?

Take off

- Is the regulatory framework appropriate?
 - Grid connections codes
 - Forecasting
 - Dispatch rules
- Has an integration study been carried out?

Mainstreaming

- Are investment plans in place to ensure sufficient flexibility?

Example Assessment - Electricity

Technology	Bioenergy	Geothermal	Solar PV	Solar CSP	Wind	Ocean
Priority	●	●	●	●	●	●
Deployment	●		●		●	
Cost	●		●		●	
Drivers						
Policy Framework						
Finance						
Remuneration Adequacy	●		●		●	
Non economic issues	●		●		●	
Access and integration	●		●		●	