

Renewable Energy Services: An Overview

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Outline

Definition of renewable energy services

- Definitional challenges for renewable energy services in the current services classifications
- A practical approach: Identify the services supporting renewable energy supply chain

Trade in renewable energy services

- How renewable energy services are traded?
- Limited data on renewable energy services trade flows
- Measures affecting trade in renewable energy services

Services are usually defined by the classification of sectors/subsectors

For example, the Services Sectoral Classification List (W/120):

1. Business Services
2. Communication Services
3. Construction and Related Engineering Services
4. Distribution Services
5. Education Services
6. Environmental Services
7. Financial Services
8. Health Related and Social Services
9. Tourism and Travel Related Services
10. Recreational, Cultural and Sporting Services
11. Transport Services
12. Other Services Not Included Elsewhere

Inadequacy of the current classifications for defining renewable energy services

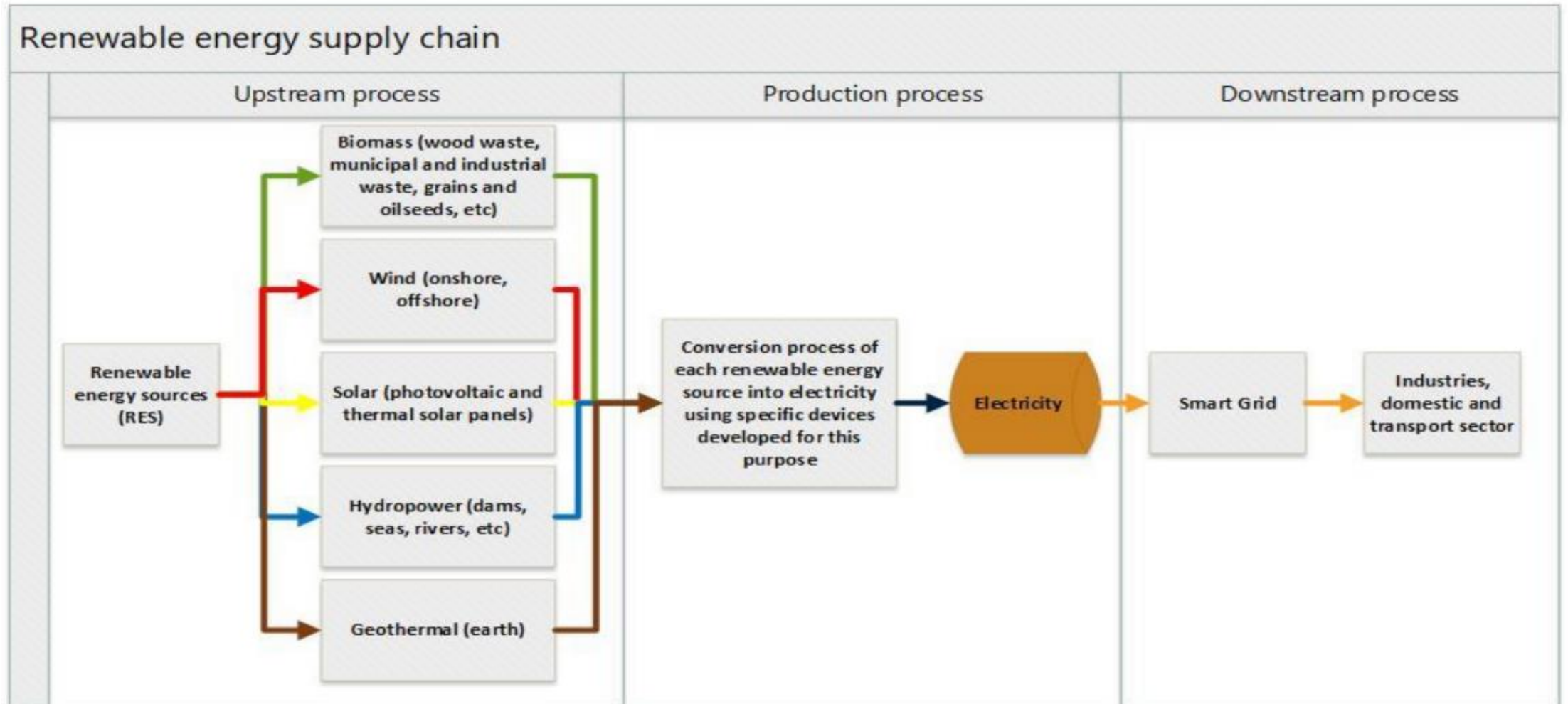
- No separate category for either energy services or renewable energy services;
- Too narrow definition of environmental services;
- Lack of visibility for energy efficiency and renewable energy related activities;
- Lack of flexibility to accommodate new activities using new technologies

Check-list for energy services in DDA negotiations

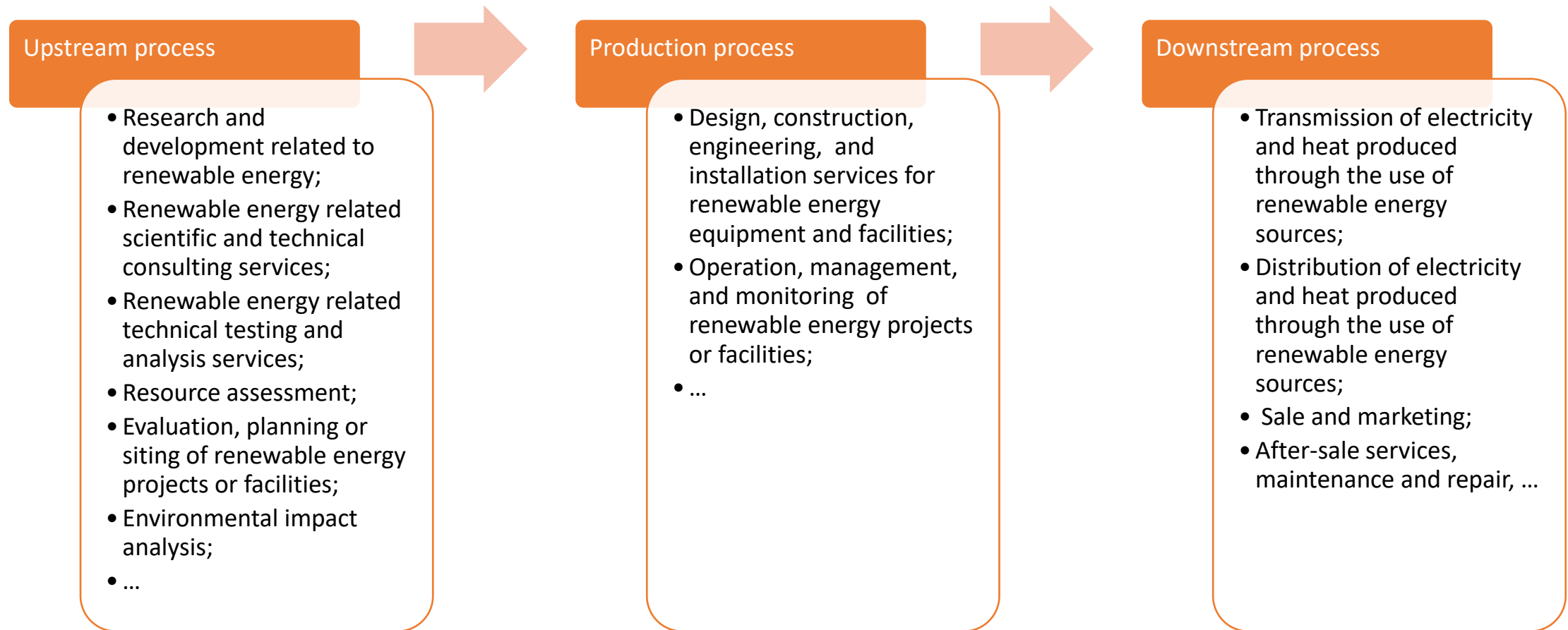
- Energy-related sub-sectors listed in W/120
 - 1.F (h) Services incidental to mining (services rendered at a fee or contract basis at oil and gas fields, e.g. drilling, repair and dismantling, etc.)
 - 1.F (j) Services incidental to energy distribution (transmission and distribution on a fee or contract basis of electricity, gaseous fuels, steam and hot water)
 - 11.G (a) Pipeline transport of fuels (transport of petroleum and petroleum products and natural gas)
- Plus other sectors:
 - Business Services
 - ✓ Engineering Services (CPC 8672-8673),
 - ✓ Technical analysis and testing services (CPC 8676),
 - ✓ Services incidental to mining (CPC 883),
 - ✓ ... etc.
 - Construction (CPC 513)
 - ✓ Construction of long distance pipelines and power lines,
 - ✓ Construction for mining,
 - ✓ ... etc.
 - Distribution (CPC 62271 and 63297)
 - ✓ Wholesale trade services of solid, liquid and gaseous fuels,
 - ✓ Retail services of fuel oil, bottled gas, coal and wood, etc.
 - Transport (CPC 7422)
 - ✓ Bulk storage and warehousing services of liquids or gases

This check-list does not distinguish on energy sources and may not be adequate for renewable energy services.

An illustration of renewable energy supply chain



Services supporting the entire renewable energy supply chain



Not included in the illustration are services as necessary inputs in the manufacturing of renewable energy equipment and facilities, such solar panels, wind turbines, etc.

One-stop solar solutions for every stage of the project

Development

- Site surveys
- Economic feasibility studies
- Power purchase agreements
- Various regulatory approvals

Financing arrangements

- Capital raising
- Loans
- Project financing

EPC

- Design, engineering
- Equipment procurement
- Construction

Asset management, O&M

- Maintenance
- Power generation monitoring
- Asset management

Trade in renewable energy services

- Renewable energy services can be traded through four modes of supply:
 - Establishment of a commercial presence by foreign investment is the dominant mode of supply for renewable energy services.
 - Movement of natural persons is also an important mode of supply for renewable energy services, in particular in the construction, installation, maintenance and repair of renewable energy facilities.
 - With technological advances, cross-border trade is gaining importance in renewable energy services (e.g. remote monitoring and diagnosis services for wind turbines).
- Renewable energy services are usually traded together with the sale of renewable energy equipment and facilities.

Limited data on renewable energy services trade

- In the renewable energy sector, data are usually about installed electricity generation capacity and electricity production from renewable energy;
- Data are rarely reported and collected specifically on renewable energy services. Some estimates might be made based on data regarding trade in construction and engineering services, or professional and other business services.

Measures affecting renewable energy services

- Governments take various policies to encourage renewable energy, including: investment incentives, tax measures, incentive tariffs (e.g. guaranteed prices, feed-in tariffs, and bidding systems), legislation (e.g. environmental standards).
- While these policies typically target one participant in the renewable energy market (e.g. generator, electric utilities, or consumers), they commonly produce upstream or downstream effects and affect other, sometimes all, market participants, including services suppliers.
- There are few barriers that specifically impede trade in renewable energy services, but measures on investment, land use, professional licensing, movement of natural persons that apply to all sectors affect trade in renewable energy services as well.



THANK YOU
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