

Partnership between



British Embassy
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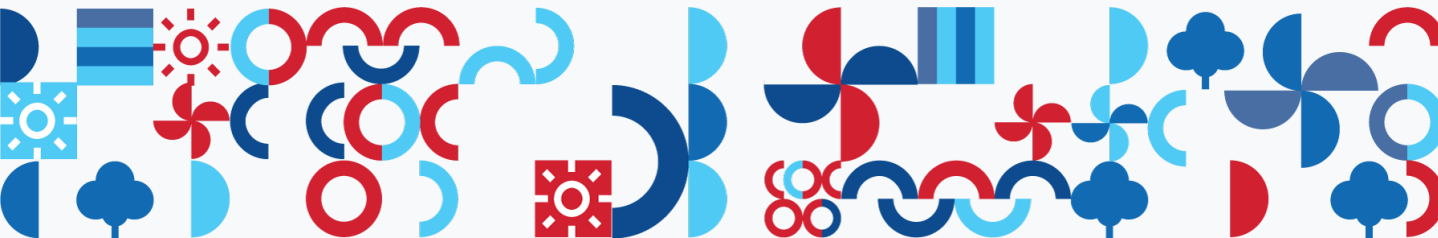
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A UK-Indonesia Low Carbon Energy Partnership

Tapping Indonesian Last Mile Electrification Potential: Novel Off-grid Business Model Concepts

Cross-Sectoral Applications for an Inclusive Energy Transition
Session 3.1: (Innovative Technologies and Business Models for Electricity Access)

14 June 2022



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Key Take Away



MENTARI

(Toward Low Carbon Energy Transition)

The MENTARI Programme, a Government of Indonesia-British Embassy Jakarta and its partners programme, aims to deliver inclusive economic growth and poverty reduction in Indonesia, by supporting the uptake of low carbon energy. MENTARI is a 4-year programme, running from 2020-2023 which has a specific focus on developing the low carbon energy sector to best support disadvantaged communities, and specifically those in eastern Indonesia.



Policy



Brokerage

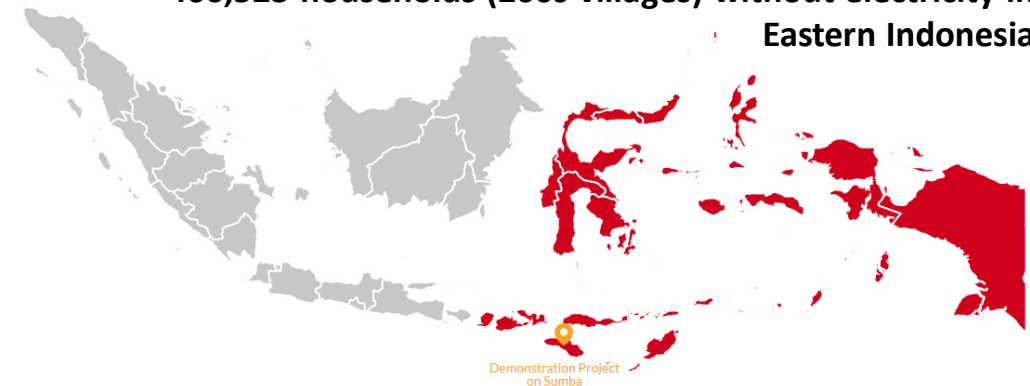


Demonstration



Collaboration
Networking

466,523 households (200s villages) without electricity in Eastern Indonesia



Demonstration Project
on Sumba

DJK, 2021



Issues of Off-Grid Definition in practices in Indonesia:

- In existing regulations*, the off-grid is simply designed as the system without any connection to utility grid.
- In practices, however findings show the following conditions:
 - **There are some off-grid programmes done by PLN funded by MEMR, MOF, others:** cannot define that off-grid is out of utility grid system
 - **There are some off-grid programmes under PLN business area:** cannot judge all power plants within jurisdiction of PLN business area is on-grid.
 - **There are some on-grid under non-PLN business area:** cannot define non-PLN business area as off-grid
 - **There are some islands that has small community, but built by PLN:** cannot define this as off-grid, as it is built and operated by PLN

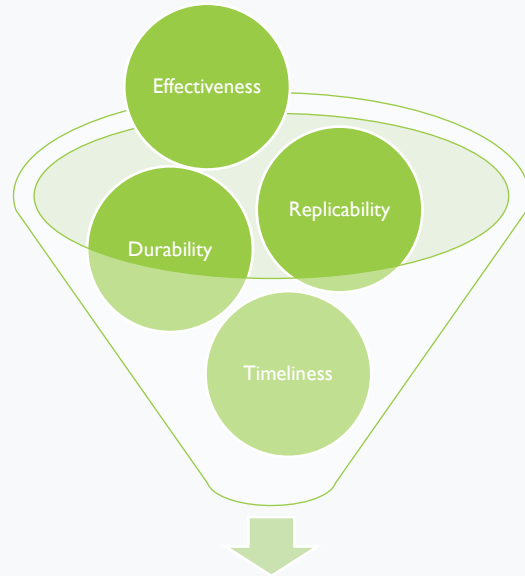
Off-Grid Definition in this study:

“Off-grid is defined as distributed approach/solutions to provide reliable electricity supply to the demand area without needing to connect to the PLN grid (20 kV or above) or any similar grid for the next five years since the PLN considers them economically viable (from the central or local official’s decision)”



Off-Grid Studies

Identification Process

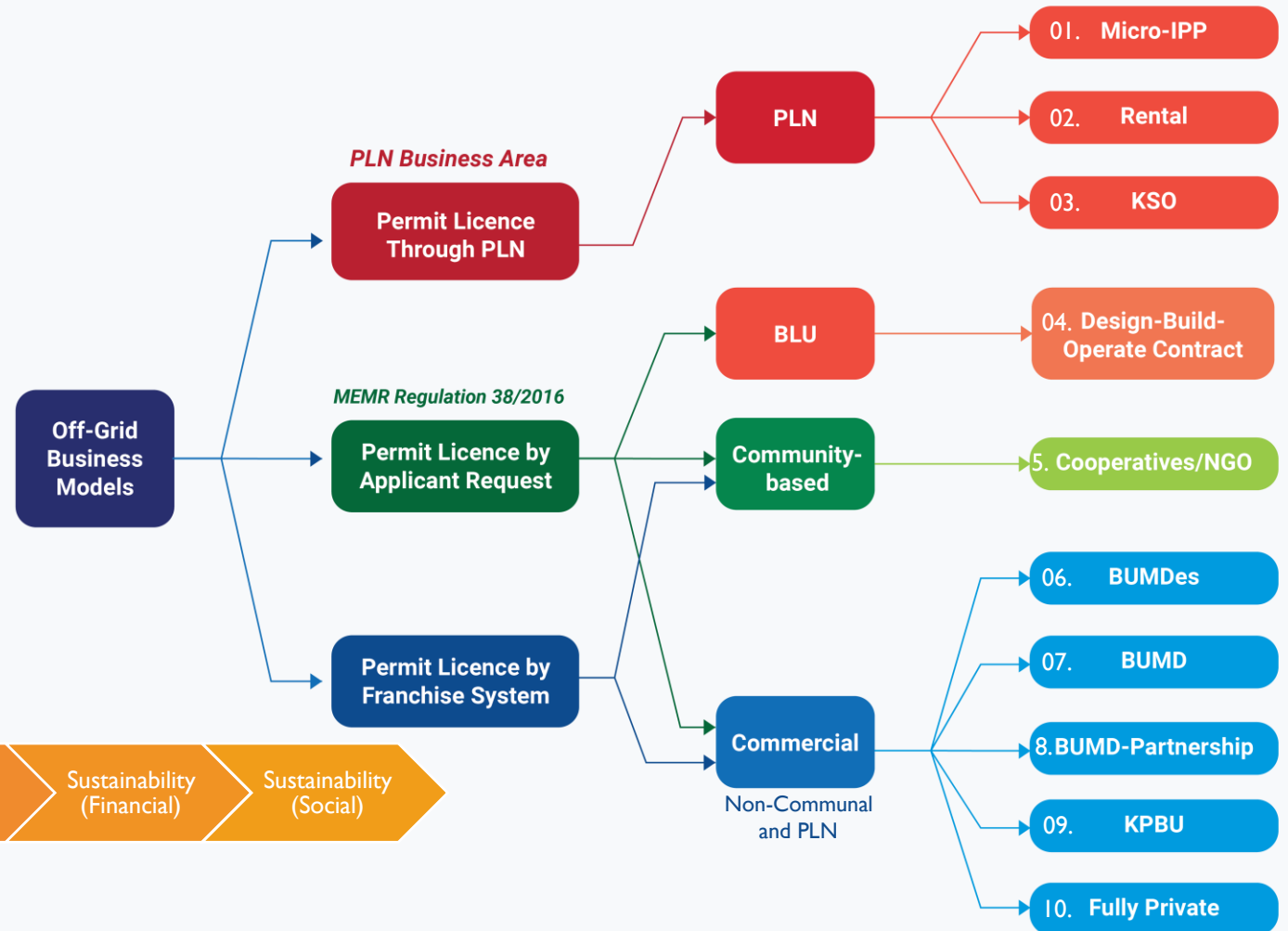


10 Business Models

Evaluation Process (Dimension)



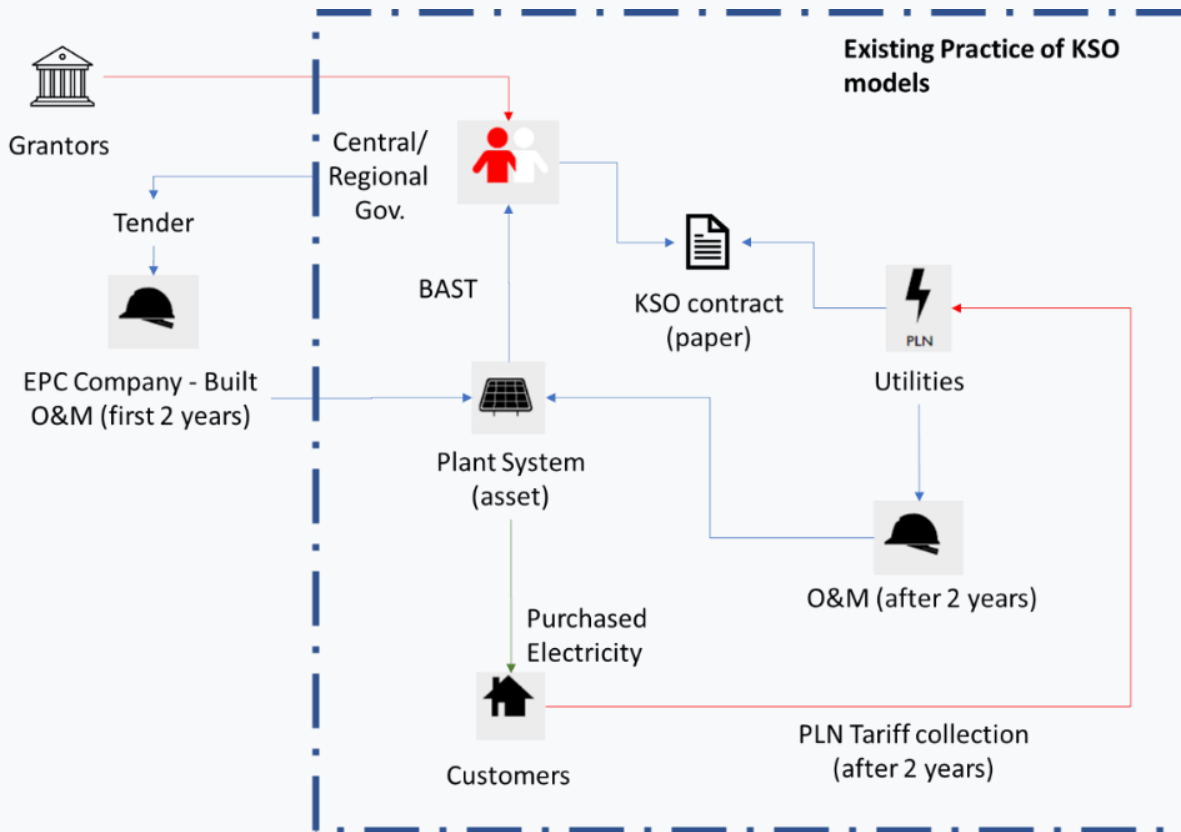
10 Institutional-based Off-Grid Business Models in Indonesia



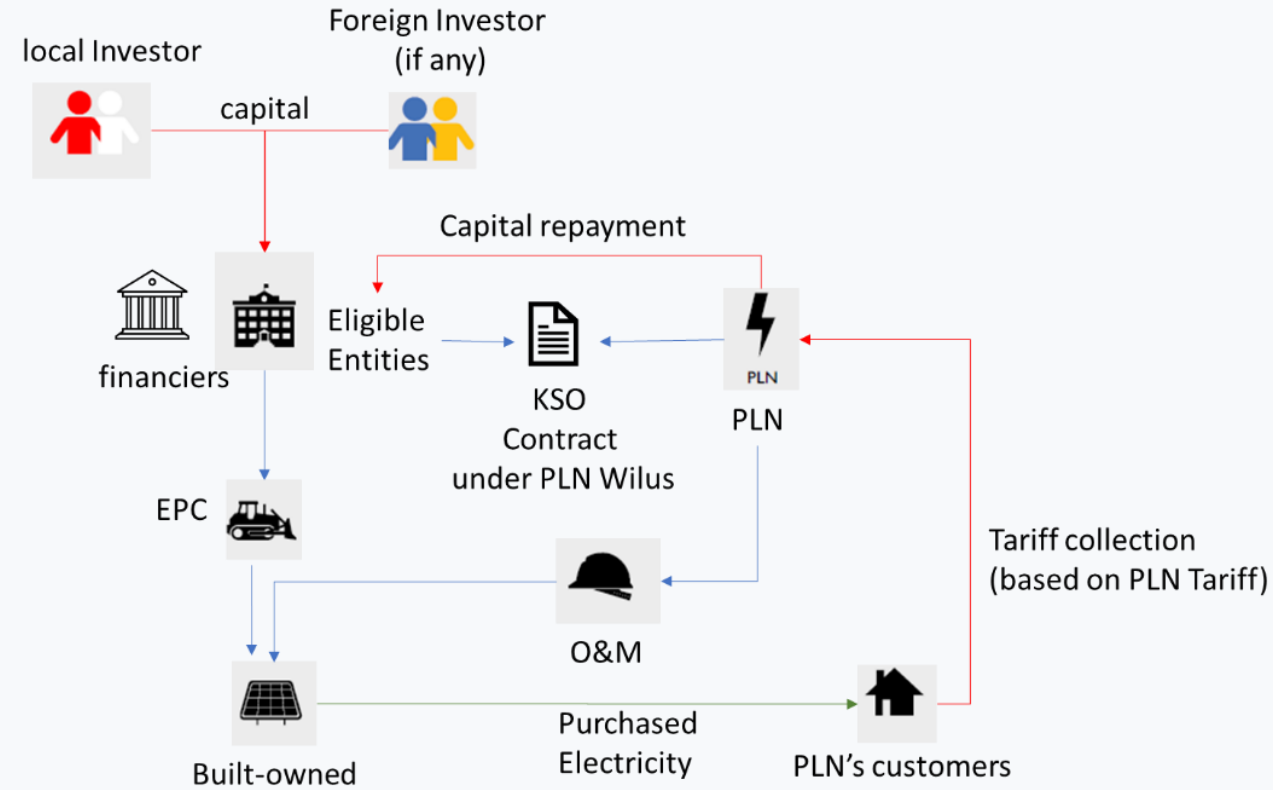
Joint operational cooperation (KSO)



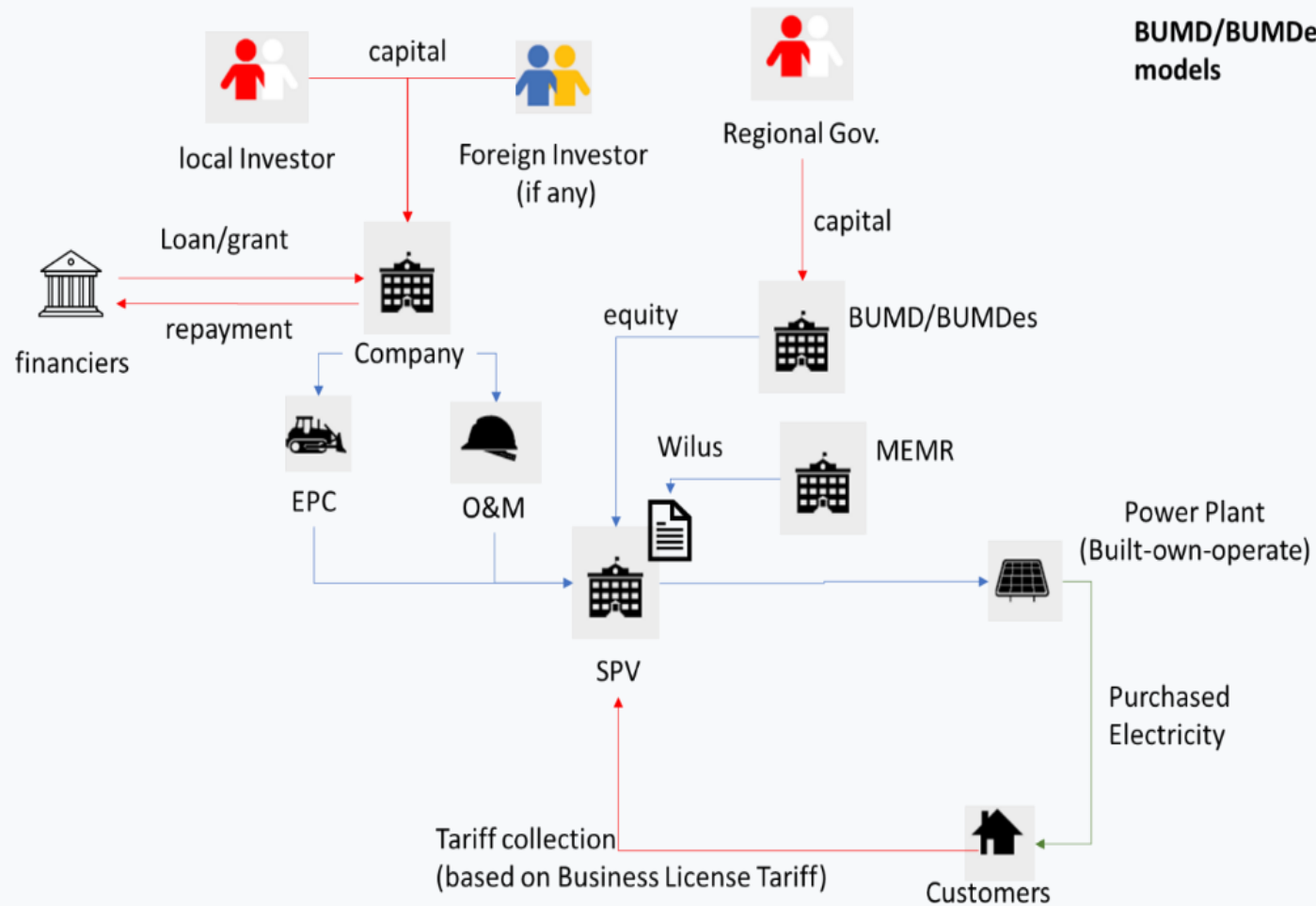
Grant/APBN-based KSO



Commercial-based KSO (proposed extended version)

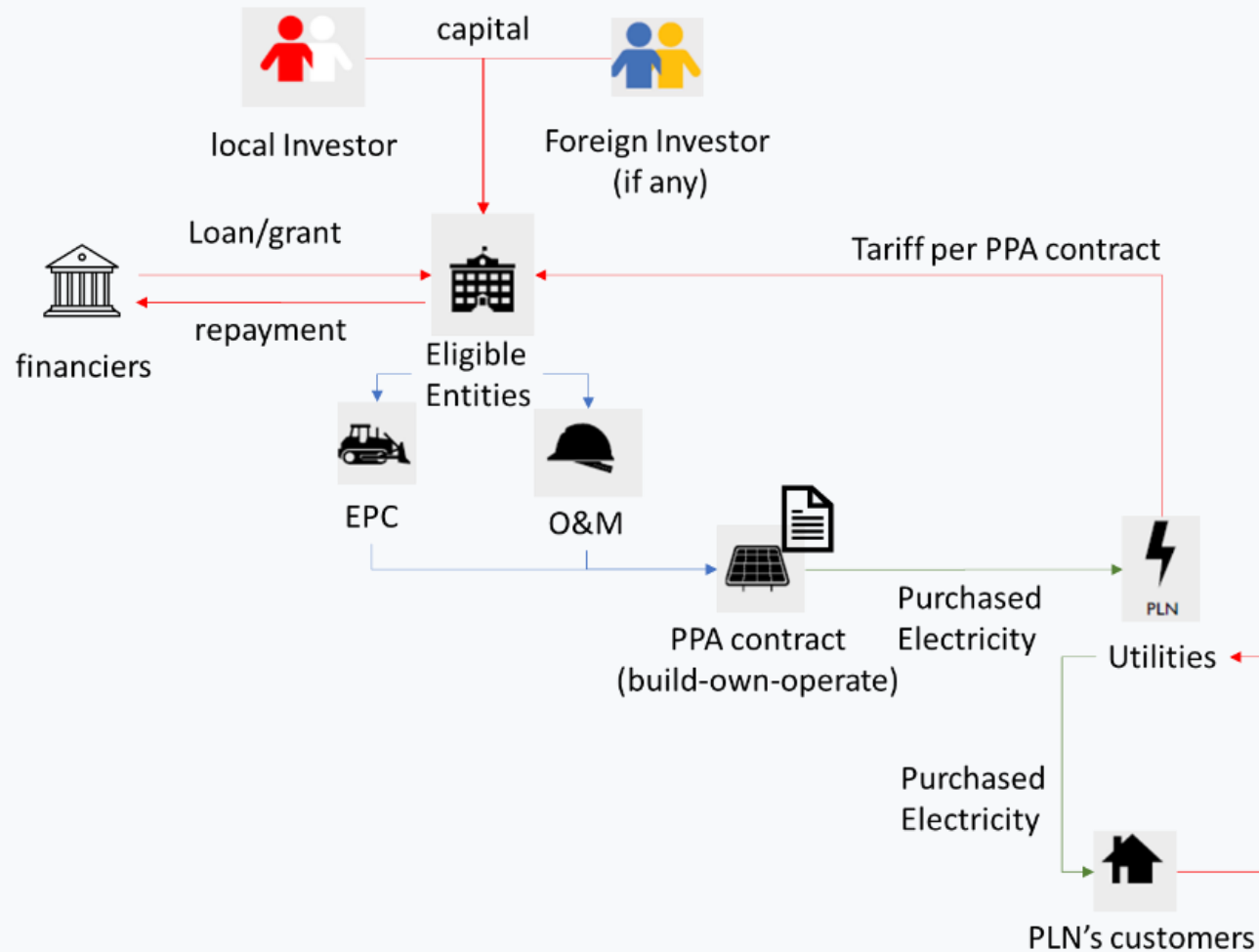


BUMD/BUMDes Partnership



Model description	Local government- owned enterprise
Tariff collection	Project company
Asset ownership	Project company
Operation and maintenance	Project company
Subsidy delivered	Capital and operating expenses
Business area licence	Required by application

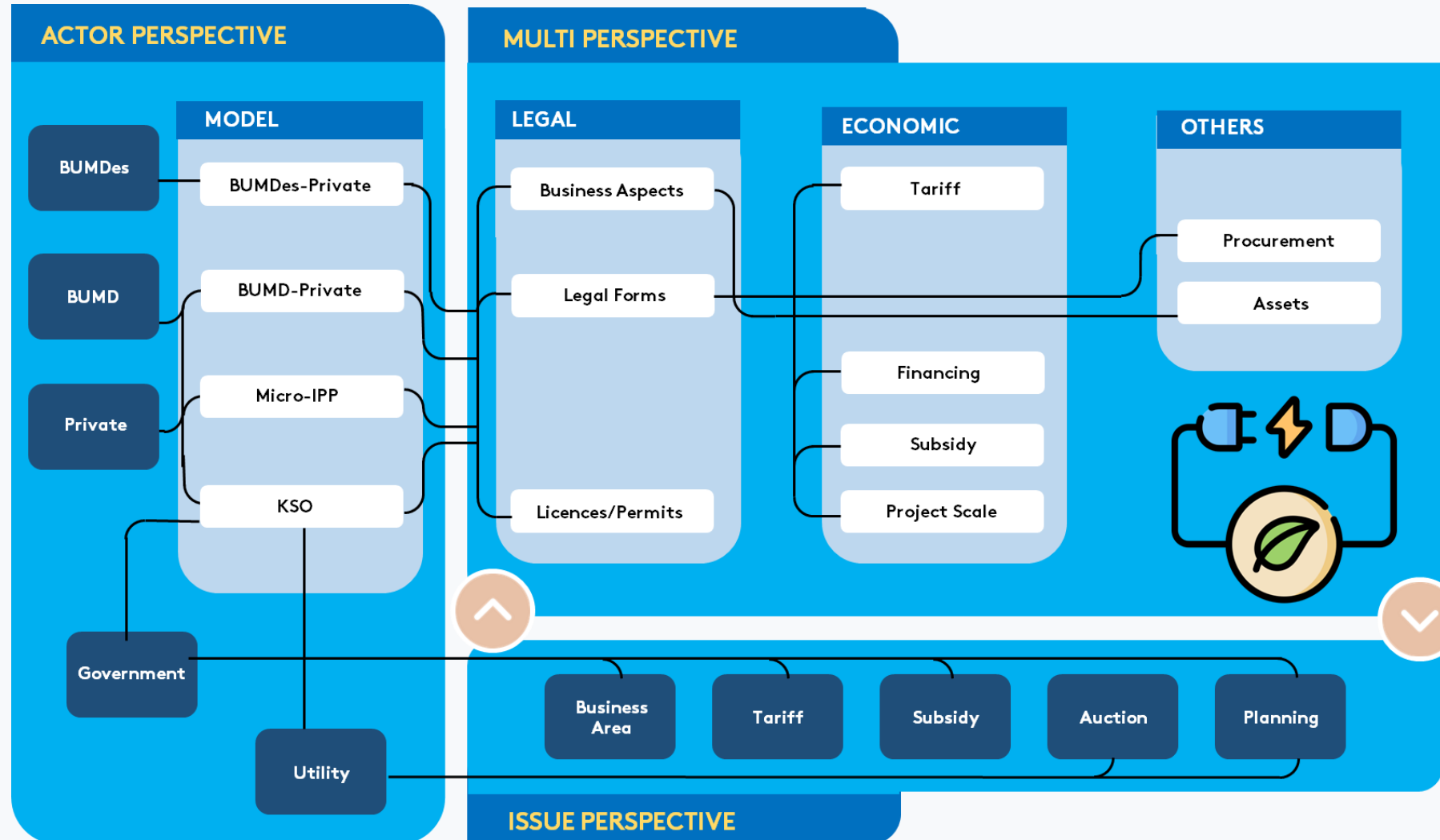
Micro-IPP



Micro-IPP models

Model description	Independent power producer
Tariff collection	PLN
Asset ownership	Project investor/developer
Operation and maintenance	Project Investor/Developer
Subsidy delivered	PLN tariff
Business area permit	No Need (under PLN's Wilus)

Integrated Business Model Environment Assessment



Legal Forms Business Aspects



Legal Forms



☐ KSO : Gov Reg. 5/2021, PLN Reg 22/2020, GR 25/2021 (no legal definition and framework, this is closed one)

☐ Micro IPP: Gov Reg. 5/2021, MEMR Reg 50/2017 and PLN Reg 62/2020

☐ BUMD-Partnership: Gov Reg. 5/2021, MEMR Regulation 50/2017 and MEMR Regulation 38/2016

Business Aspects

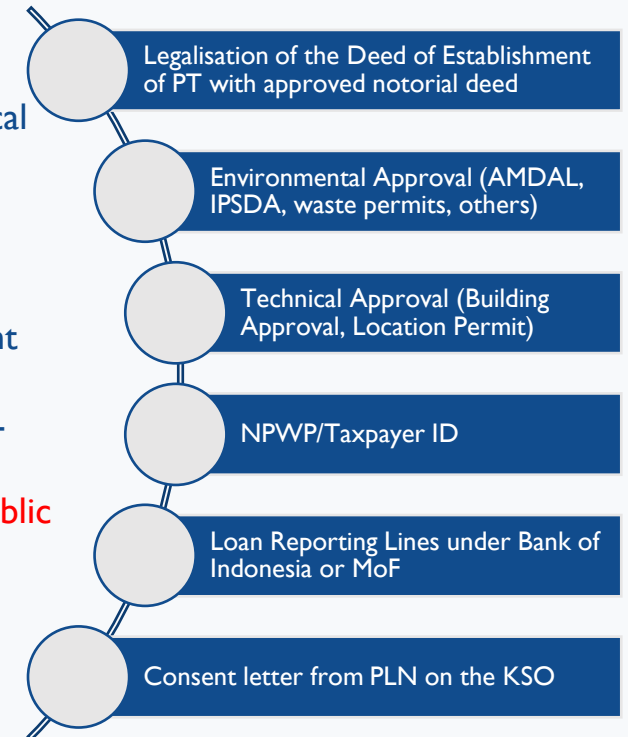
- Business Identification Number (*Nomor Induk Berusaha/NIB*)
- IUJPTL
- Certificate for Business Entity that Operates Electricity Supporting Services (*Sertifikat Badan Usaha Jasa Penunjang Tenaga Listrik/SBUJPTL*);
- Standard operating procedures for the fulfillment of electrical safety
- Work equipment that supports the fulfillment of electrical safety
- Competence certificate employee
- Business-licensing standards for construction and installment maintenance services for electrical installations
- Business-licensing standards for the operation of electricity-supply installation
- **Generation Business License for Supply of Electricity for Public Interest (IUPTLU)**
- **Proposal for Establishment of the joint-venture partnership**
- **Integrated IUPTLU with business area**
- **RUPTL (Business plan)**

Blue: Applicable to all

Red: Applicable to Micro-IPP and BUMD-partnership

Green: Applicable to BUMD Partnership only

Other Licenses/Permits



Economic Perspectives



Wholesale Tariff

KSO: No regulation yet on tariff .

Micro-IPP: MEMR Regulation 50/2017 amended with 04/2020

BUMD partnership: no whole sale due to direct sale to customer

Retail Tariff

KSO: MEMR Regulation Nomor 41 of 2017

Micro-IPP: MEMR Regulation Nomor 41 of 2017

BUMD partnership: Electricity Law, GR 14/2012 and MEMR Reg 47/2018.

Procurement

KSO: PLN Director regulation 22 of 2020

Micro-IPP: MEMR Regulation 50/2017 and PLN Director 62/2020

BUMD partnership: MEMR Regulation 11 of 2021 and MEMR Regulation 38 of 2016

Financing

KSO: the investor capitals, Loans

Micro-IPP: Equity/capitals, Loans, Other viable financing options

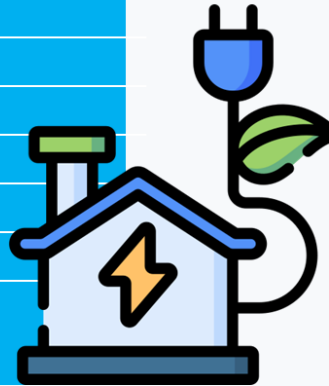
BUMD partnership: Regional Budget/Equity Participations, Business revenues, Loans and Grants

Asset Ownership and Scalability



Ownership

ASSETS	KSO	BUMD/BUMDes Partnership	MICRO-IPP
Generation	Entities	Joint Venture Company (JVC)	IPP
Line Connection	Entities	JVC	PLN
Substation	Entities	JVC	PLN
Distribution Lines	Entities	JVC	PLN
Customer Installation/Metering	Entities	BUMD/BUMDes	PLN
Operation of Assets	PLN	JVC	IPP
Maintenance of Assets	PLN	JVC	IPP



Scalability

ASSETS	KSO	BUMD/BUMDes Partnership	MICRO-IPP
Project-by-Project Off-Grid Tender	Capable	Capable but specific to their region	Capable
National Scale Off-Grid Tender	Capable	Incapable	Capable
Regional Off-Grid Tender	Capable	Capable but specific to their region	Capable
Bulk Supplier Procurement for Off-Grid EPC	Capable	Incapable	Capable



KSO – Institutional Analysis



INSTITUTION

BUMD/DG NREEC

PROS

Operation and maintenance cost and human capitals are not a burden for BUMD/DG NREEC.

Not all BUMD or local government are capable to operation and maintenance, this KSO will help them release the burden to train and deploy the competent persons in sites,

CONS

Learning in renewable energy project in regional bodies (BUMD) or local DG NREEC are lowered, but still costly.

PLN

Zero capital investment for providing electricity supply

Zero feasibility study cost and customer acquisitions (social cost) during pre-development.

If asset transferred is taken into account in existing KSO contract (or namely Serah Terima Operasi), this will be zero investment assets.

PLN has competent human capitals to maintain and operate the plants with low-cost mode (more effective and lesser cost in comparison with BUMD or DG NREEC).

Free customer increment for the regional KPI.

Responsible to evaluate the conditions of existing plants to be KSO-ed.

Responsible to deploy regularly and consistently the competent persons to maintain and operate.

Local communities

Having operation and maintenance in PLN's side, will improve service qualities to local communities.

There will be a subsidy access through PLN tariff for below poverty groups, while in voluntary collection, equal tariff collection might be applied.

Local communities will not be fully responsible in managing tariff collection.

Knowledge losses of managing tariff collection in local community will be a problem. PLN might involves the local community somehow to maintain it.




BUMD/Des-Partnership Inst. Analysis



INSTITUTION	PROS	CONS
BUMD/DG NREEC	<p>Involvement of BUMD/BUMDes will provide a condensed process of administrative in regional or village level. The involvement of BUMD/BUMDes will improve the bankability of project, as the project security higher by local supports and buy-in.</p> <p>A buy-in of local/regional supports to ensure the wilus occupation or the project development are strong.</p> <p>Lowering the social cost, by helping the social acceptances and tackling social conflicts/issues.</p> <p>BUMD or BUMDes will untap the regional/local funds for rural electricity supply and offers more local benefits.</p>	<p>Only few BUMD or BUMDes have strong competencies and experiences in electricity supply business, but this can be tackled as long as the private possessed all the competencies.</p>
Privates	<p>Offer high competent human capitals and strong fund capital supports.</p> <p>Longstanding experiences in feasibility study and customer acquisitions (social cost) during pre-development.</p> <p>High flexibility to access multiple funding sources than the BUMD/BUMDes</p>	<p>If the initiative from privates, this will take a long-term communication in explaining the purposes and win-win benefits to local government (BUMD/BUMDes).</p> <p>Responsible to evaluate the electricity plan within the partnership</p>
PLN	<p>Zero risk and capital investment for providing electricity supply</p> <p>Zero feasibility study cost and customer acquisitions (social cost) during pre-development.</p>	<p>Stands ready to do acquisition whenever it is needed by government. Need efforts to evaluate and asses the worthiness of the transfer, later. Fortunately, free customer acquisition cost.</p>
Local communities	<p>The involvement of BUMD/BUMDes will increase the trust of project development to more benefit local people.</p> <p>The discussion with local communities can be well accommodated or represented by BUMD/BUMDes involvement.</p>	<p>In worst case, BUMD/BUMDes will offer the engagement directly between privates and local communities. This will not be a good option, while the role of BUMD/BUMDes are critical.</p>

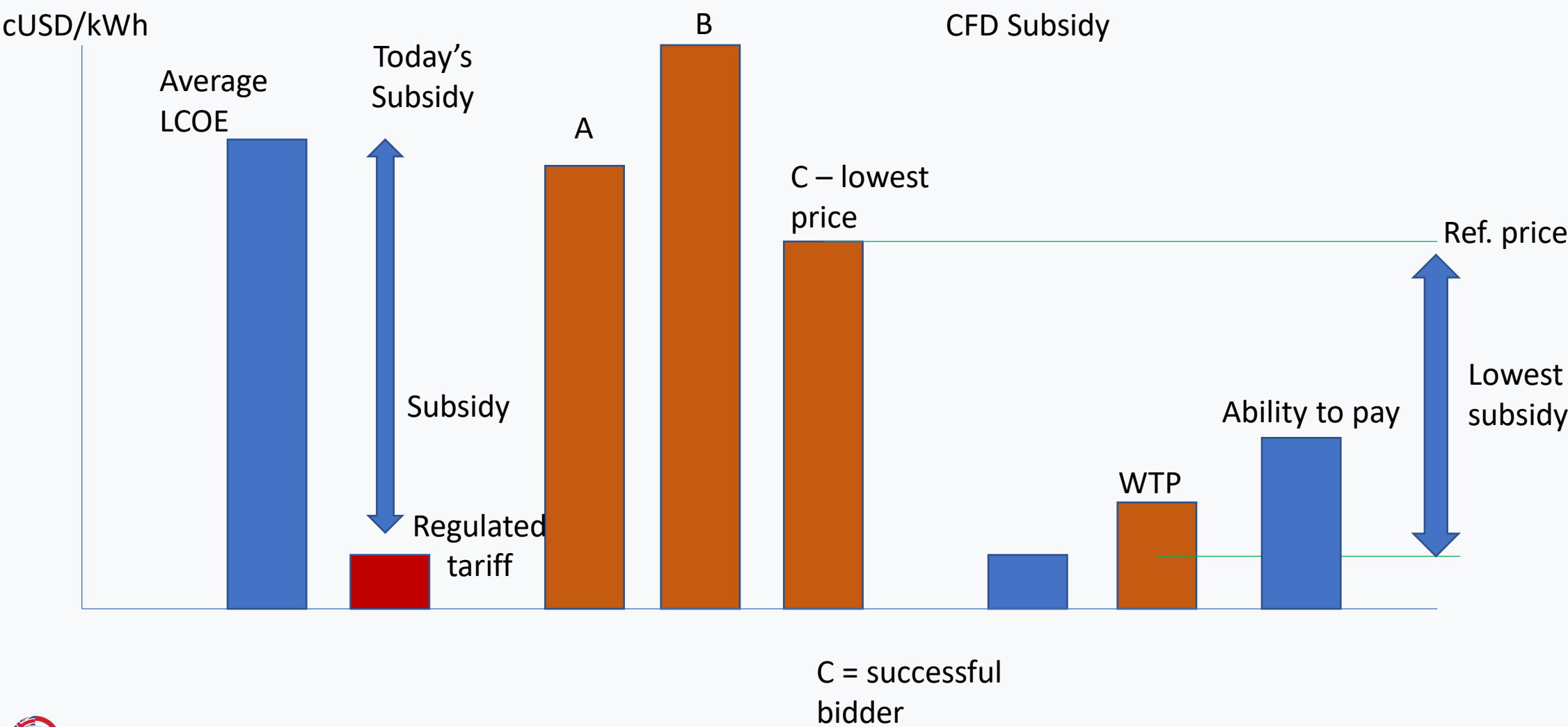
Micro-IPP – Institutional Analysis



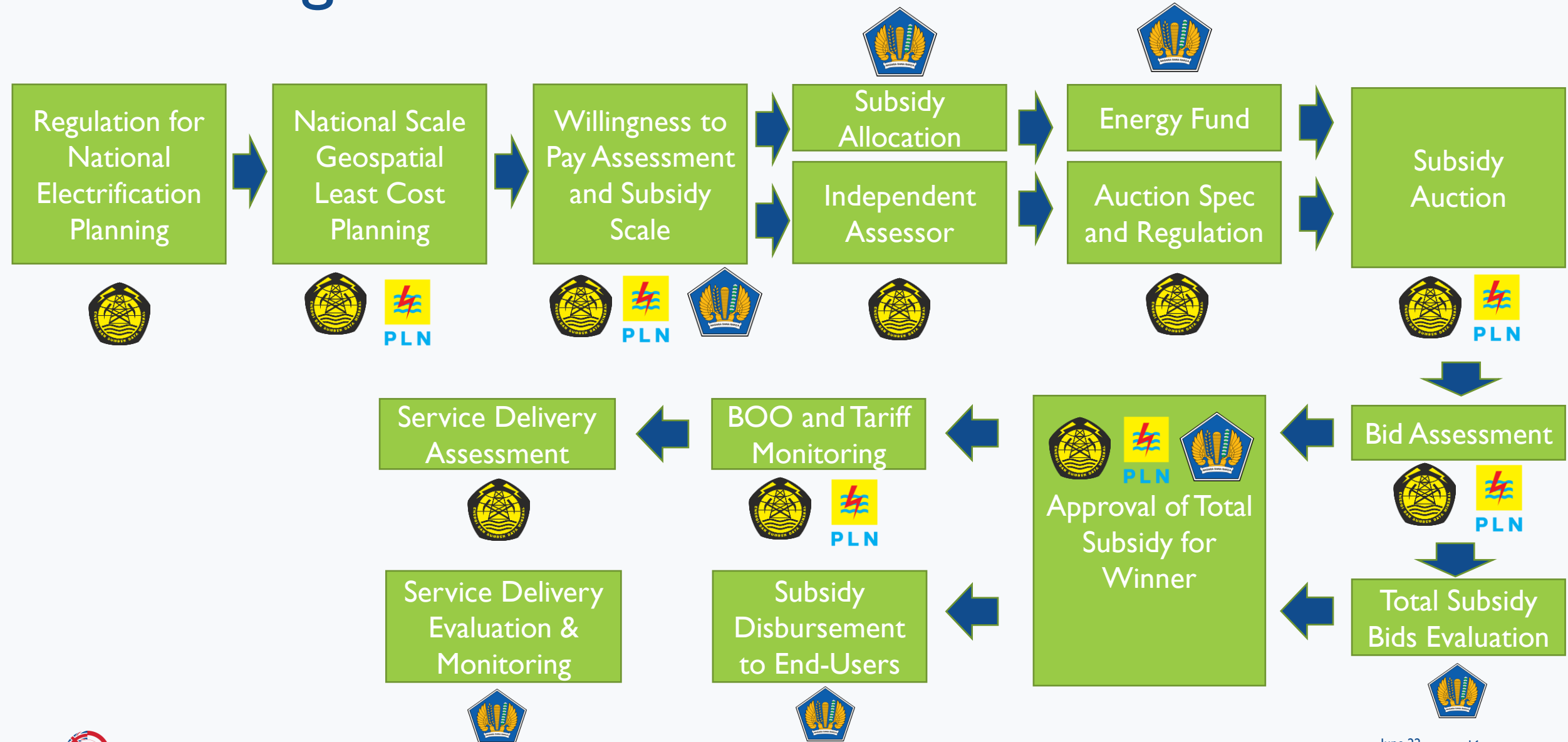
INSTITUTION	PROS 	CONS 
BUMD/DG NREEC	Can be taking a part as Micro-IPP whenever ready administratively, technically and financially	<p>Need to prepare the requirements set by PLN.</p> <p>High possibility of losing the tender if no strong technical background and financial support.</p>
Privates	Will allow small privates/IPP to grow without having risk to be competed by large companies.	The large companies might not be eligible to participate in the micro-IPP tender.
PLN	There will be an opportunity for PLN in growing competitiveness in market, from the benefit of more IPPs are growing.	Responsible to provide different procurement process from the existing one. It might be identical, but with lower specifications and financial status. This will expose the risks more to PLN.
Local communities	Can be participating by building commercial entities eligible as IPP.	<p>Need to prepare the requirements set by PLN.</p> <p>High possibility of losing the tender if no strong technical background and financial support.</p>



New Subsidy Concept Implementation Process



CFD Diagram Process





Barriers of Renewable Energy Off-Grid Market

These three models are alternative quick win scenarios to solve off-grid business models, several barriers shall need to be addressed by the government:

- Fragmented Legal Frameworks In Indonesia: Integrated Policy For Off-grid (End-to-End Policies)
- A gap of National Rural Electrification Planning
- Cognitive Behaviour of PLN as solely state electricity company
- Funding Gaps for Off-grid Electricity Programmes
- Government's Clear Direction of PLN's Position in Off-grid
- Market-accepted Tariff for Off-grid
- Advanced Financing Schemes for Off-Grid

Without having the above conditions, the existing off-grid policy framework is not sufficient to enable commercialisation for off-grid with affordable prices.

Key Take-Away Points

- **A new integrated regulatory and legal framework for off-grid is necessary:**
 - **National electrification policy and planning for off-grid**
 - **Transparent data electricity access at villages and households**
 - Off-grid area priority is to PLN, however, it needs a clear cut-off time if PLN fails to provide the access it will be opened to commercial.
 - **Cost-based Tariff for off-grid – possible support from the government over subsidy**
 - **Competitive tender for subsidy with independent assessment**
 - To adjust subsidy from PLN to customer-based and to lower the possible subsidy
 - An establishment of off-grid energy access fund for the subsidy sources (relocation of fossils or existing subsidies)
 - **Specific regulations for new business models**
 - **KSO**
 - Definition of KSO model, business aspects, institutional and legal arrangement (new regulation)
 - Procurement (amendment of MEMR Regulation 50/2017 and Presidential Decree 12/2021)
 - Tariff for KSO (amendment of MEMR Regulation 12/2017 and 50/2017)
 - Asset transfer procedures (new regulation)
 - Allowing to cash out the operational and maintenance expense for the non-PLN asset operations (restructuring the state-owned regulation for KSO model)
 - **Microgrid**
 - PLN procure micro-off grid renewable projects separately from existing IPP process under MEMR Reg 50/2017 and PLN Reg 62/2020.
- **BUMD/BUMDes to take initiative for establishing a private collaboration for off-grid electrification.**
- **Collaborative effort from inter-ministerial for enabling three business models**
 - To local financiers, local beneficiaries, central governments, Financial Services Authority (Otoritas Jasa Keuangan/OJK) and ministry of finance



Thank you

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