

The ideas behind the IGov 'straw' Fit-for-Purpose GB Energy Governance Framework

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New Thinking For Energy



Definitions

Innovation -

Not just technology, but
new practices, business
models, social preferences,
that lead to change on the
ground

Governance

the policies, institutions,
regulation, market &
networks rules & incentives
and the process/politics
behind them (including the
way people are involved)

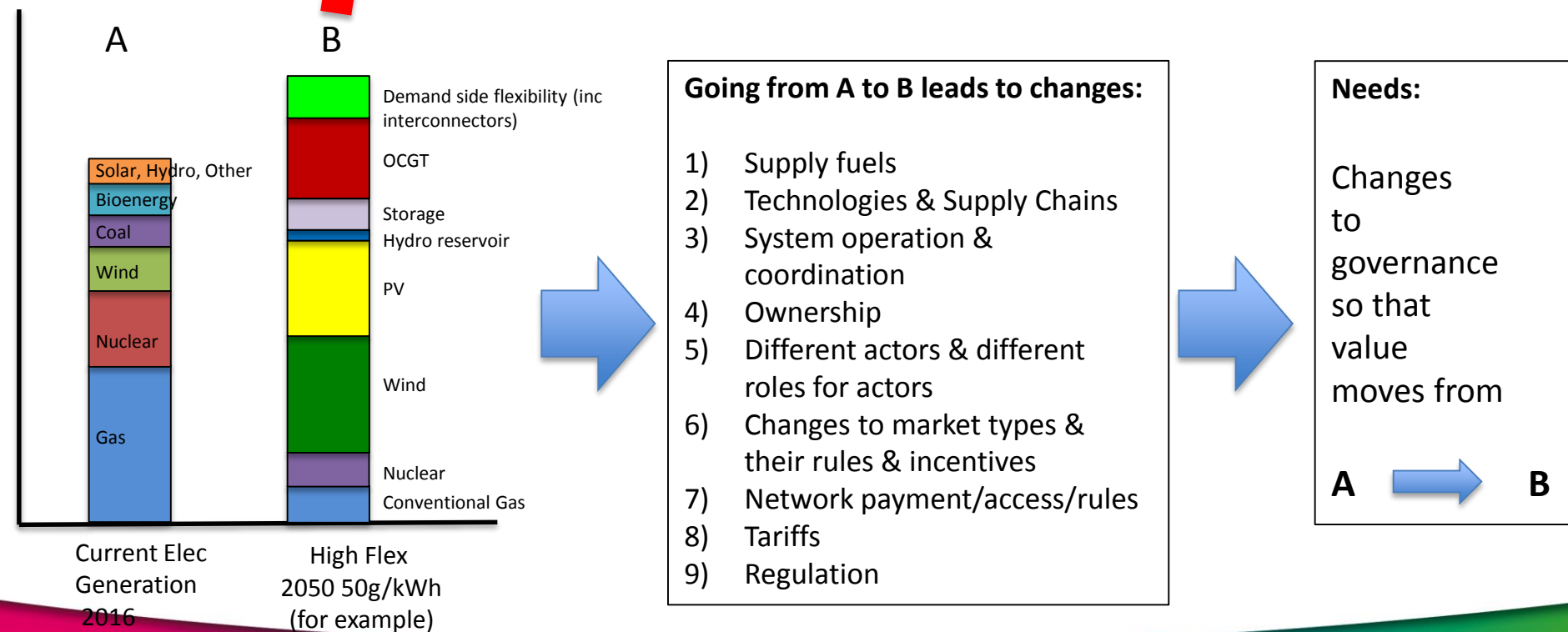
OVERVIEW - Why is it important to reform the GB's energy governance framework?

- Energy is the main source of CO2
 - Energy is made up of electricity, heat and transport – and main CO2 reductions so far have been in 'easy' electricity
 - Energy system transformation needs speeding up
- Multiple technologies – either new or with falling prices – could enable cheaper, more energy efficient system operation– but value (ie ability to access payment) remains mainly with old 'dirty' system
- Mitigation technology pathway has huge distributional impacts for society – a political not a technological / economic issue
- Energy is a whole system and the governance framework has to be fit for purpose across all dimensions to ensure integration and avoid silos

Models assume necessary governance changes will occur, do not make explicit what those governance changes need to be, and are electricity focused.

By 2030, system also has to be integrated across electricity, heat and transport

This leads to further complexities in the design, operation, coordination and appropriate transfer of value within the system and makes the case for effective governance stronger still.

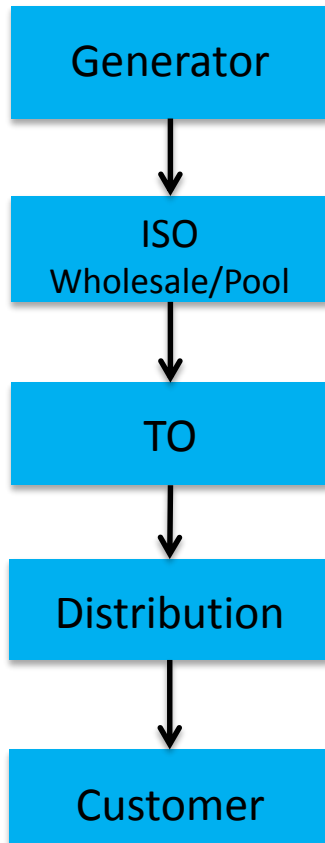


IGov's 'straw' fit-for-purpose GB governance framework

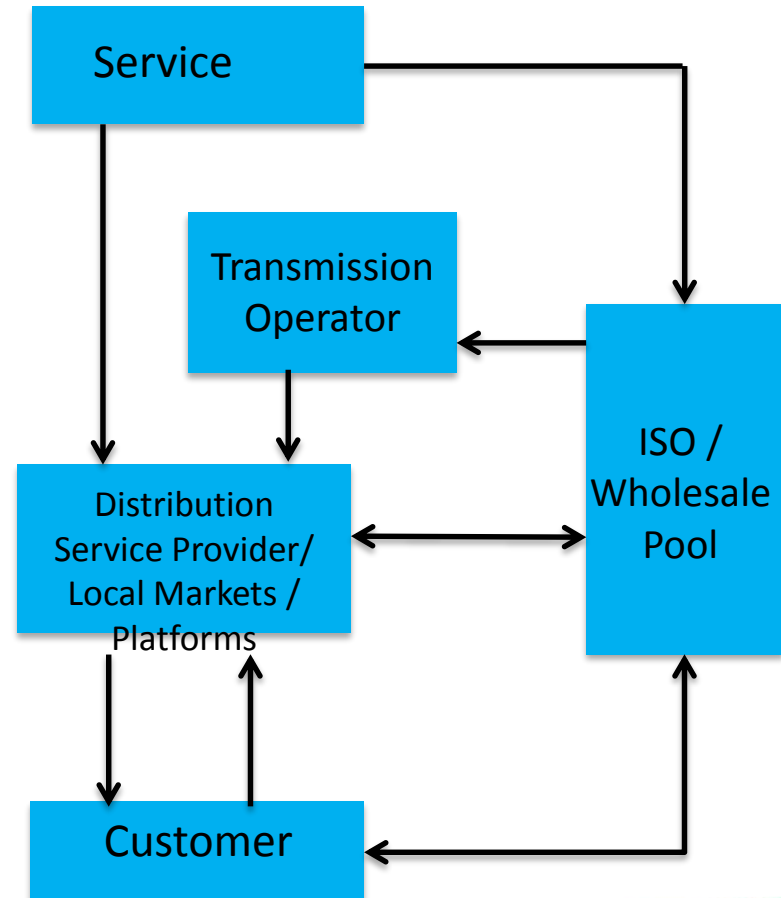
- IGov argues that GB's current governance framework is not fit for purpose.
- Distribution service providers (distribution market facilitators) become the 'heart' of this new institutional framework
 - this is an institutionalised, new value proposition with a local market balancer and area coordinator of platforms
 - Only established so far in NYS
- Apps and platforms, occasionally using P2P systems, can also exist within the current conventional wholesale market structure
 - No need for capacity markets
- People and customers consent seen as essential
- Performance based regulation vital incentive mechanism

To come back to....

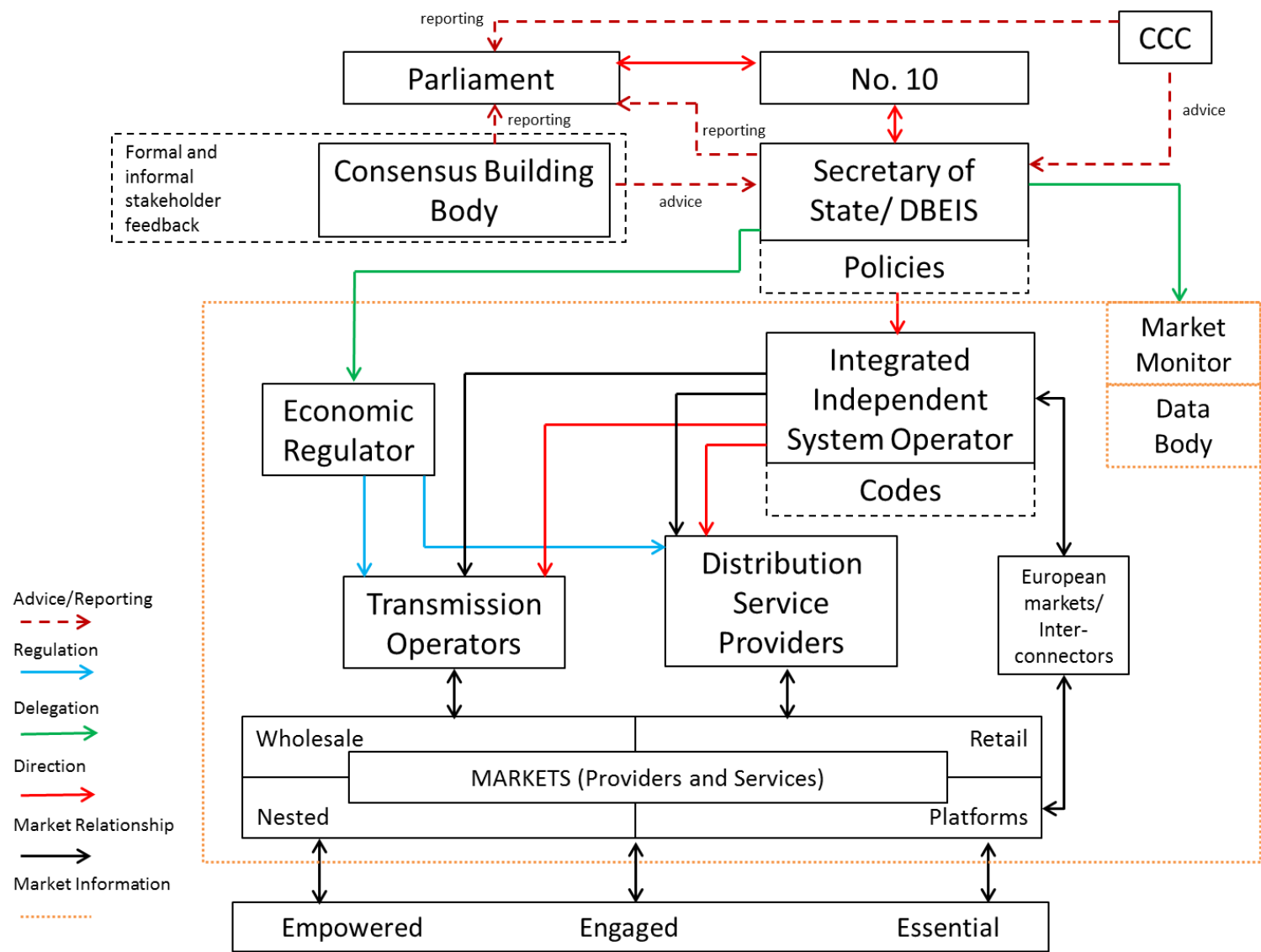
Traditional



Flexible and Smart

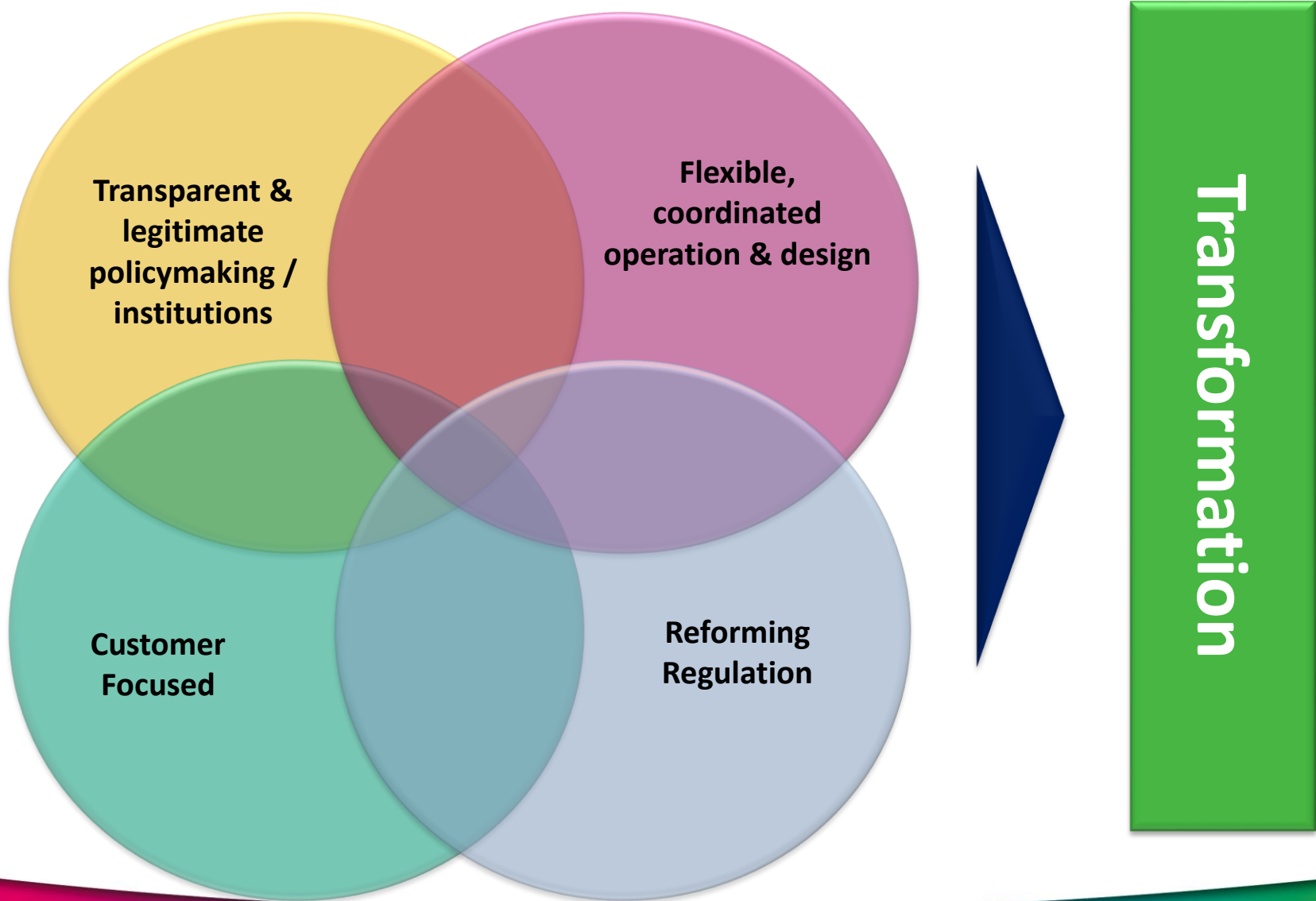


Fit-for-Purpose GB Energy Governance Framework



Taking this in easy steps...

Overview Findings of IGov1 – 4 central dimensions required for energy system transformation



Overview Findings of IGov

Transparent & legitimate policymaking/institutions

- Coherent decision making
- Less BEIS delegation, more SoS Direction
- Consensus Building Body
- Market Monitor and Data Body

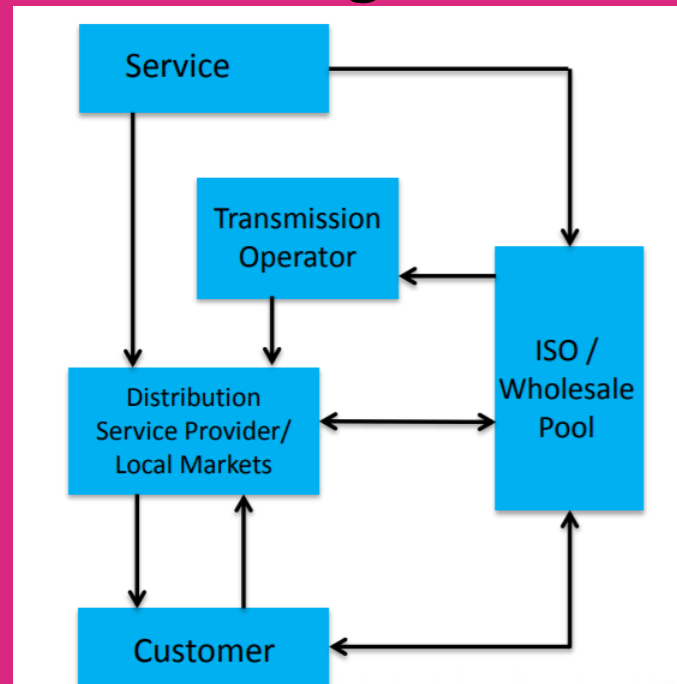
Overview Findings of IGov

Customer Focused

- Customer wishes at center
- Meaningful consent
- Engagement
- Trust, equity, legitimacy and democracy
- Tariffs, prices and bills

Overview Findings of IGov

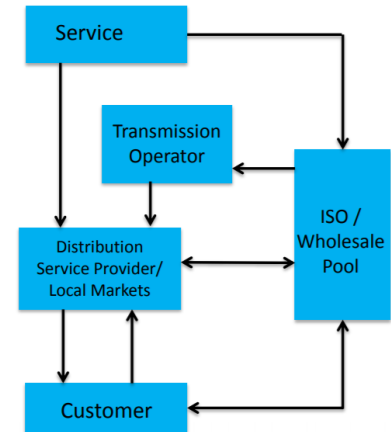
Flexible, coordinated operation & design



Overview Findings of IGov

Flexible, coordinated operation & design

- Service should be able to sell to whom they want (national or local)
- Customer should be able to buy from whom they want (national or local)
- IISO has responsibility to develop infrastructure to meet CCC targets, and to coordinate and integrate across heat and electricity
- DSP are coordinators and integrators of local areas and markets, regulated through PBR
- Bottom-up system optimisation with TO increasingly balancer



DSOs vs DSPs

DSO

Challenges

DSP

Better than now, but
not much granularity

D system needs co-ordination,
granularity of value and data
access

Enables this

Better than now, but
not much

Promotes energy efficiency,
DSM, integration, flexibility,
LEM

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Certain customers

Customer / people focused

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Regulated to meet desired
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Both government targets /
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Regulated to encourage
transactions / innovation of
practice / new entrants

Yes, and helps to reduce
regulatory lag

Not really

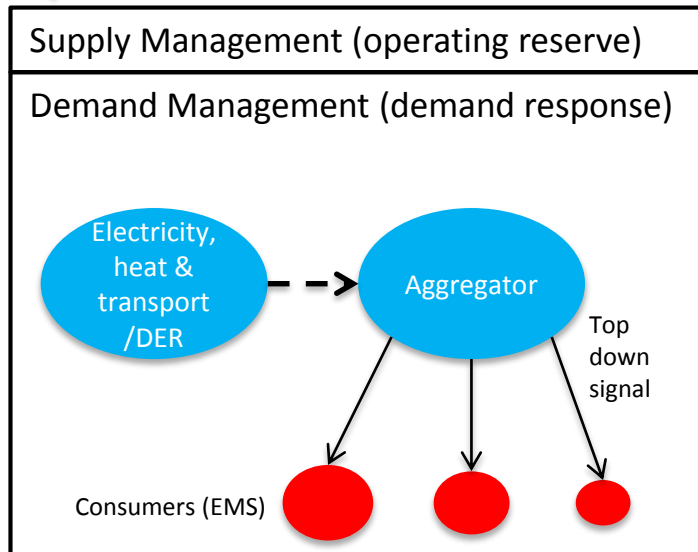
Transparent and legitimate
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Greater coherence of
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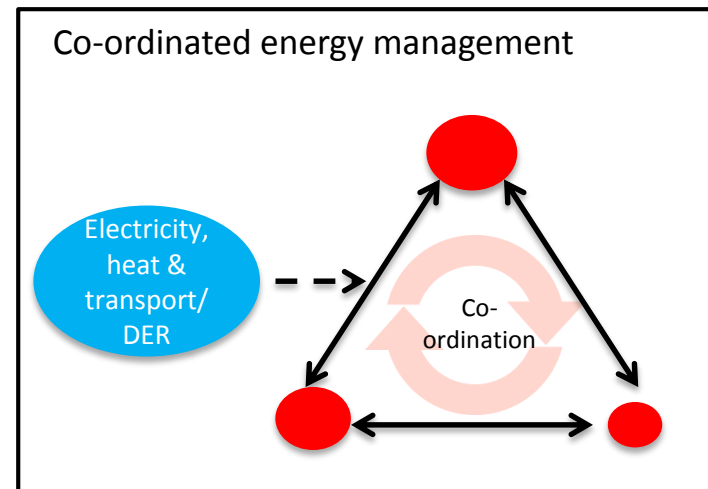
Coordination at Distribution level important

Supply-side

Demand-side



- Cluster of single actor best effort
- Limited control ability



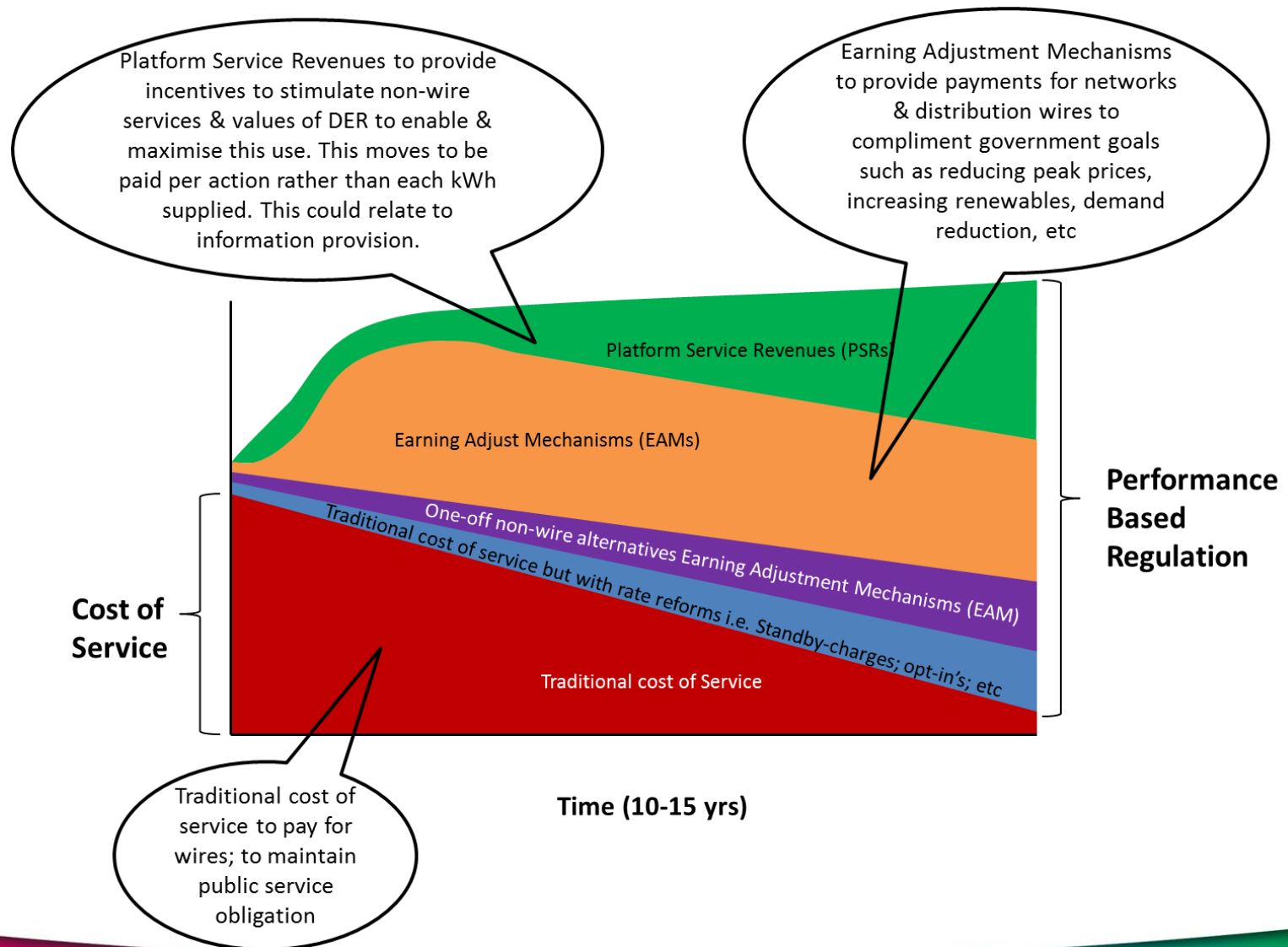
- Actors communicate to coordinate
 - control feedback
- Community best effort
- Higher control ability

Source: adapted from Vercschae, Kato, Kawashima & Matsuyam (2015) <http://vision.kuee.kyoto-u.ac.jp/japanese/happyou/pdf/Rodrigo ASN 2015.pdf>

Reforming Regulation

- Ofgem to economic regulator (same hierarchy as IISO)
- Performance based regulation
- Access to data

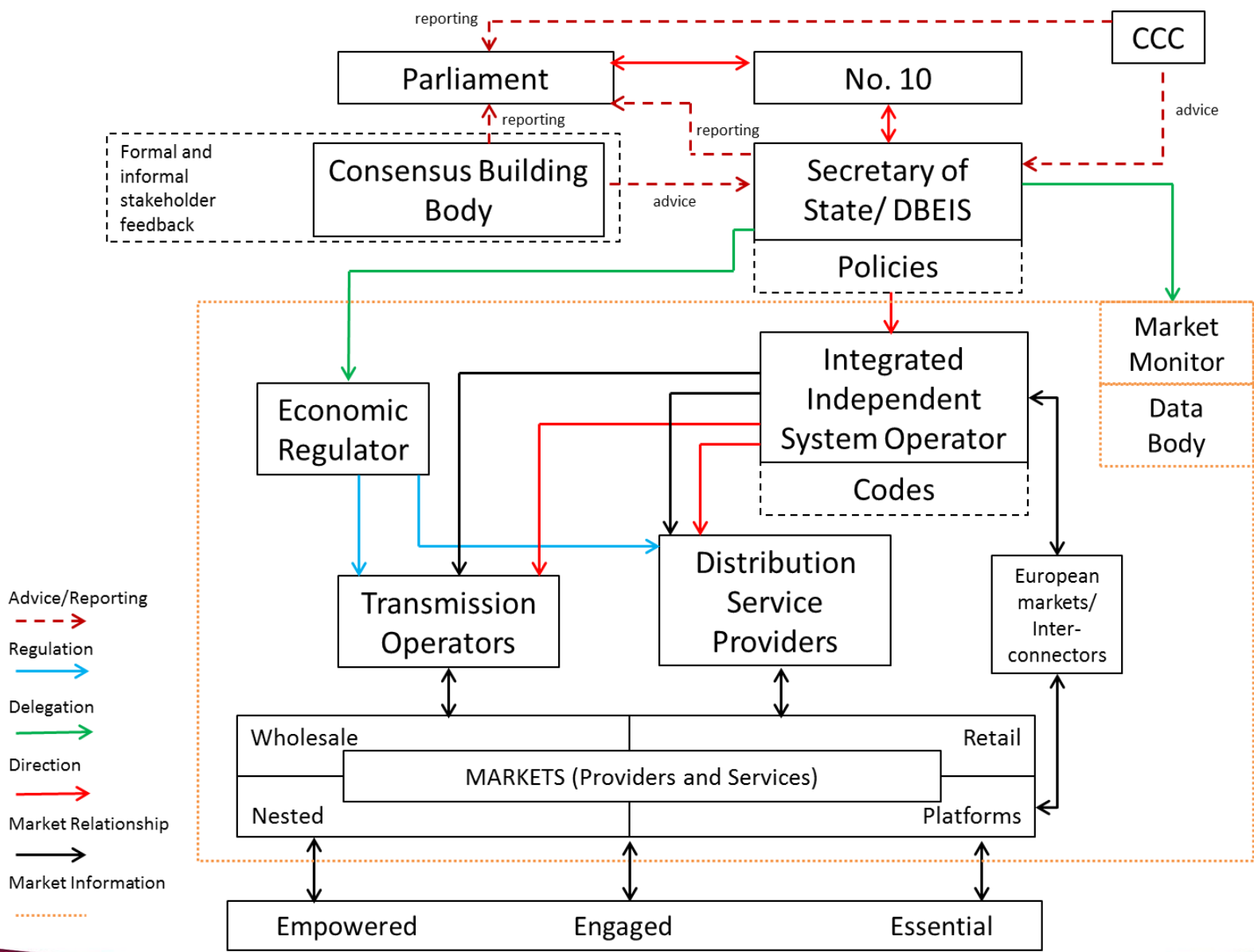
Performance Based Regulation & Change



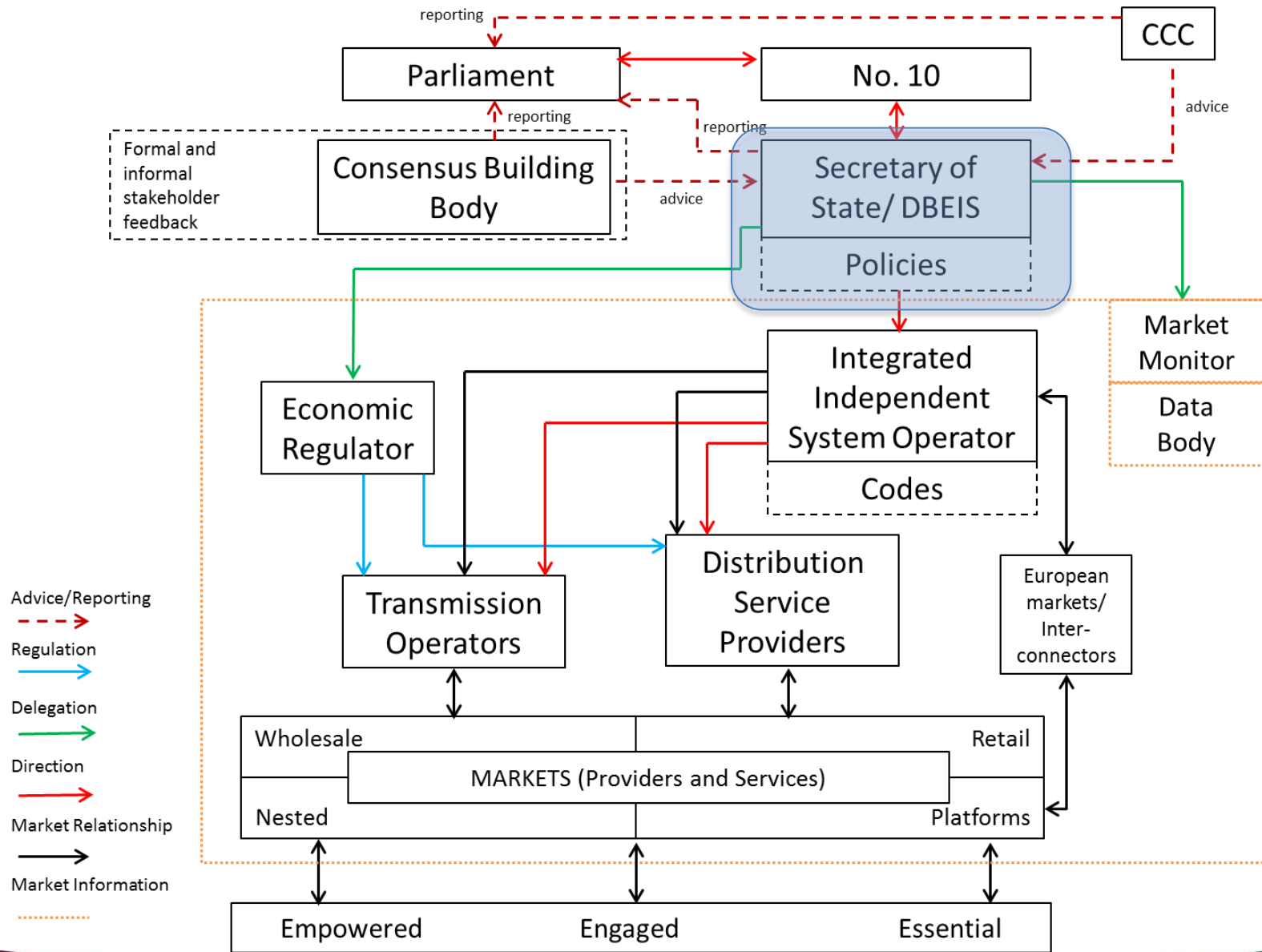
Institutions in New Framework

| The same | Changed | New |
|----------|---|--|
| TO | IISO | Consensus Building Body (CBB) - New and separate or part of another body? |
| | Ofgem as Economic Regulator | Data Body (but could sit in many places not necessarily stand-alone) |
| | DNO to DSP | |
| | Code Bodies, part of IISO or separate | |
| | Market Monitor, separate or part of something | |

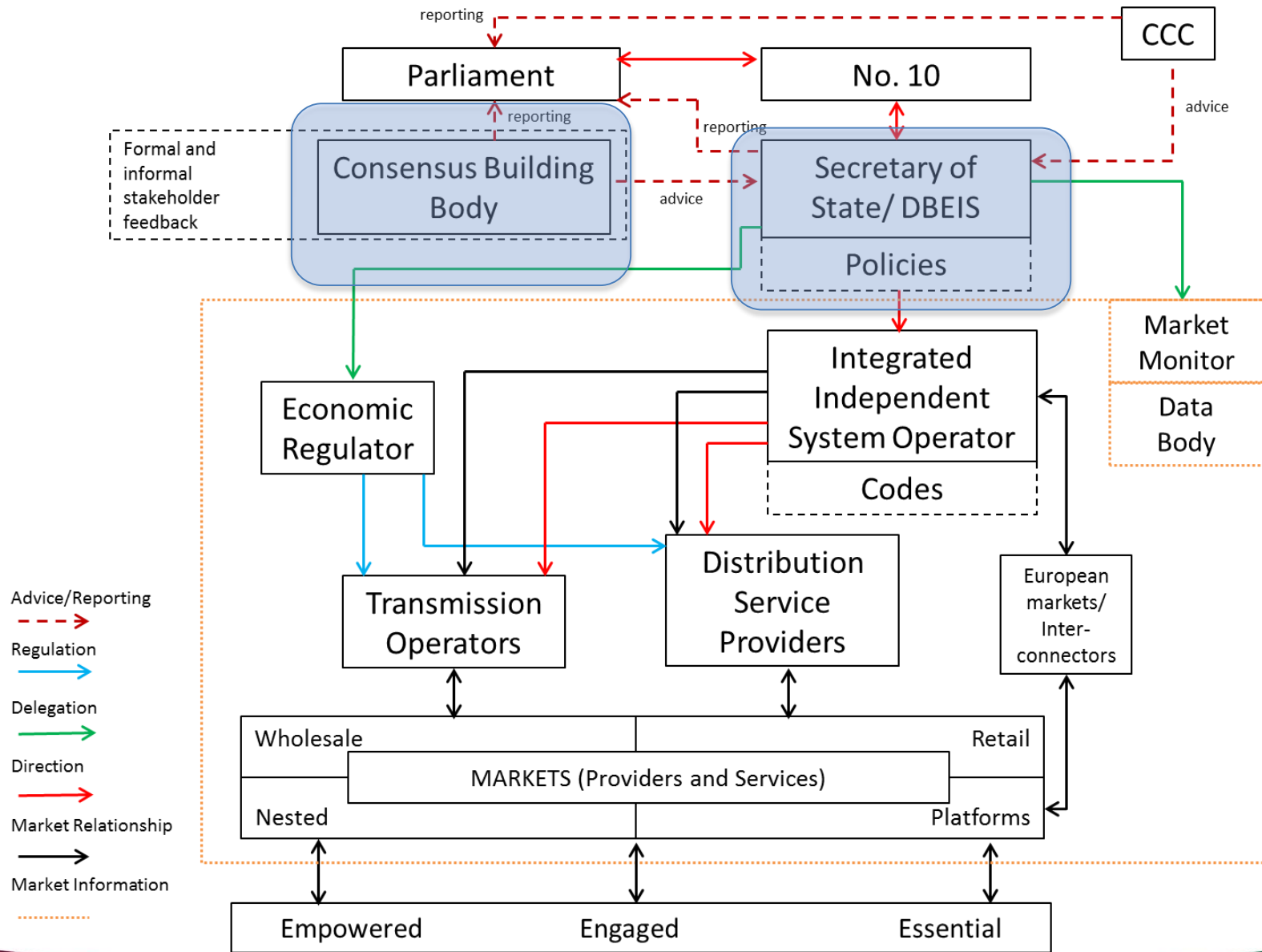
Fit-for-Purpose GB Energy Governance Framework



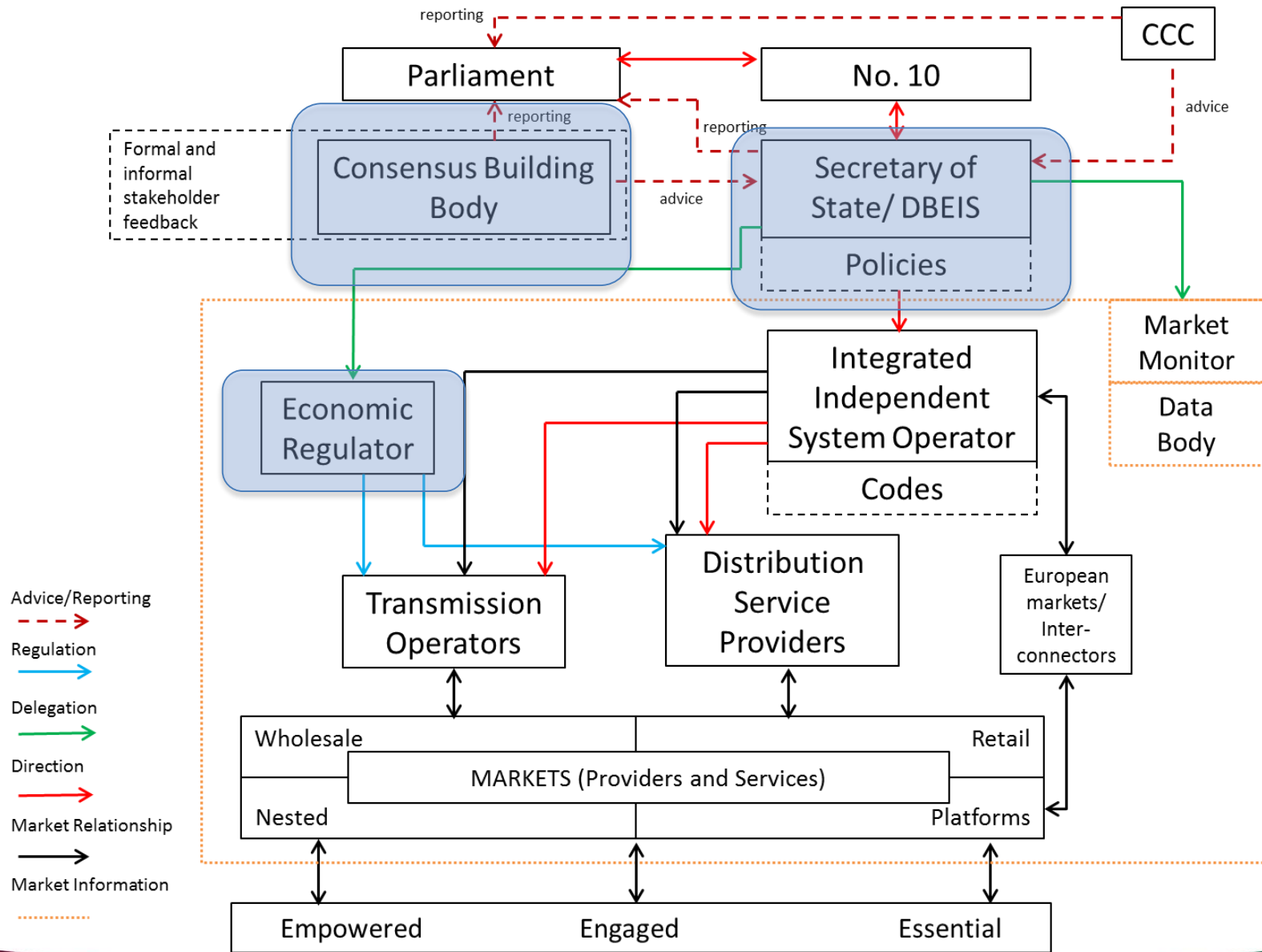
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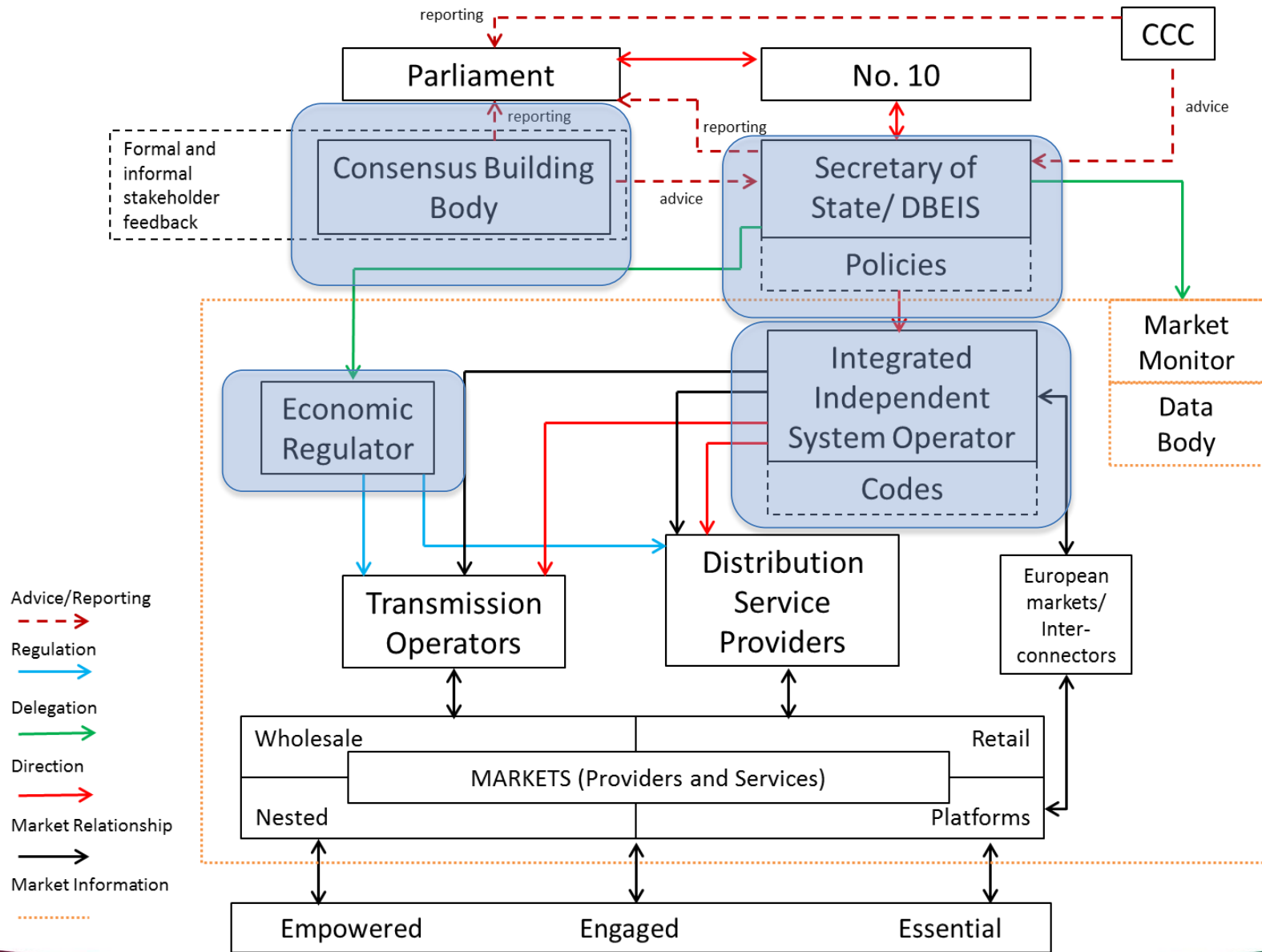
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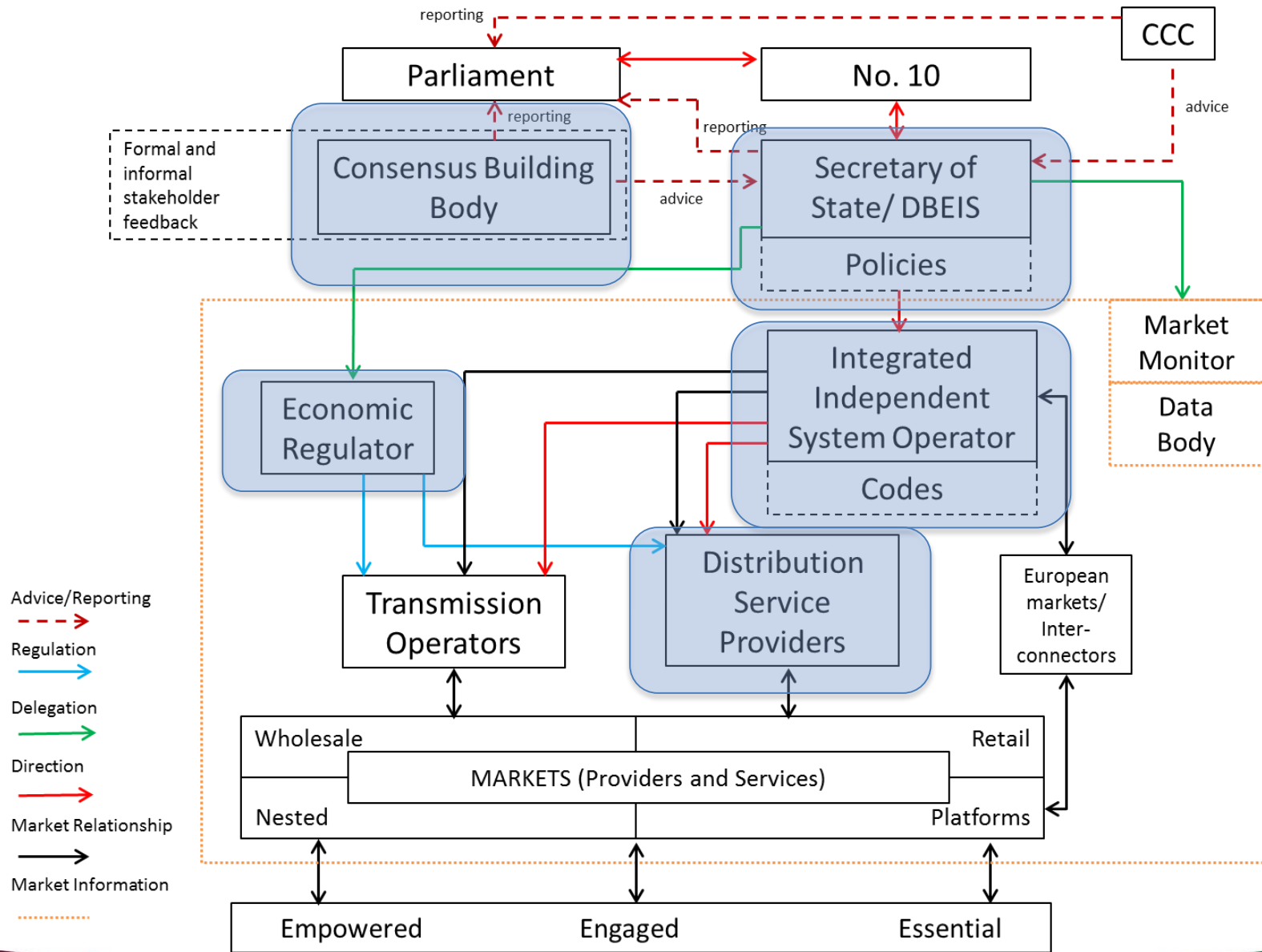
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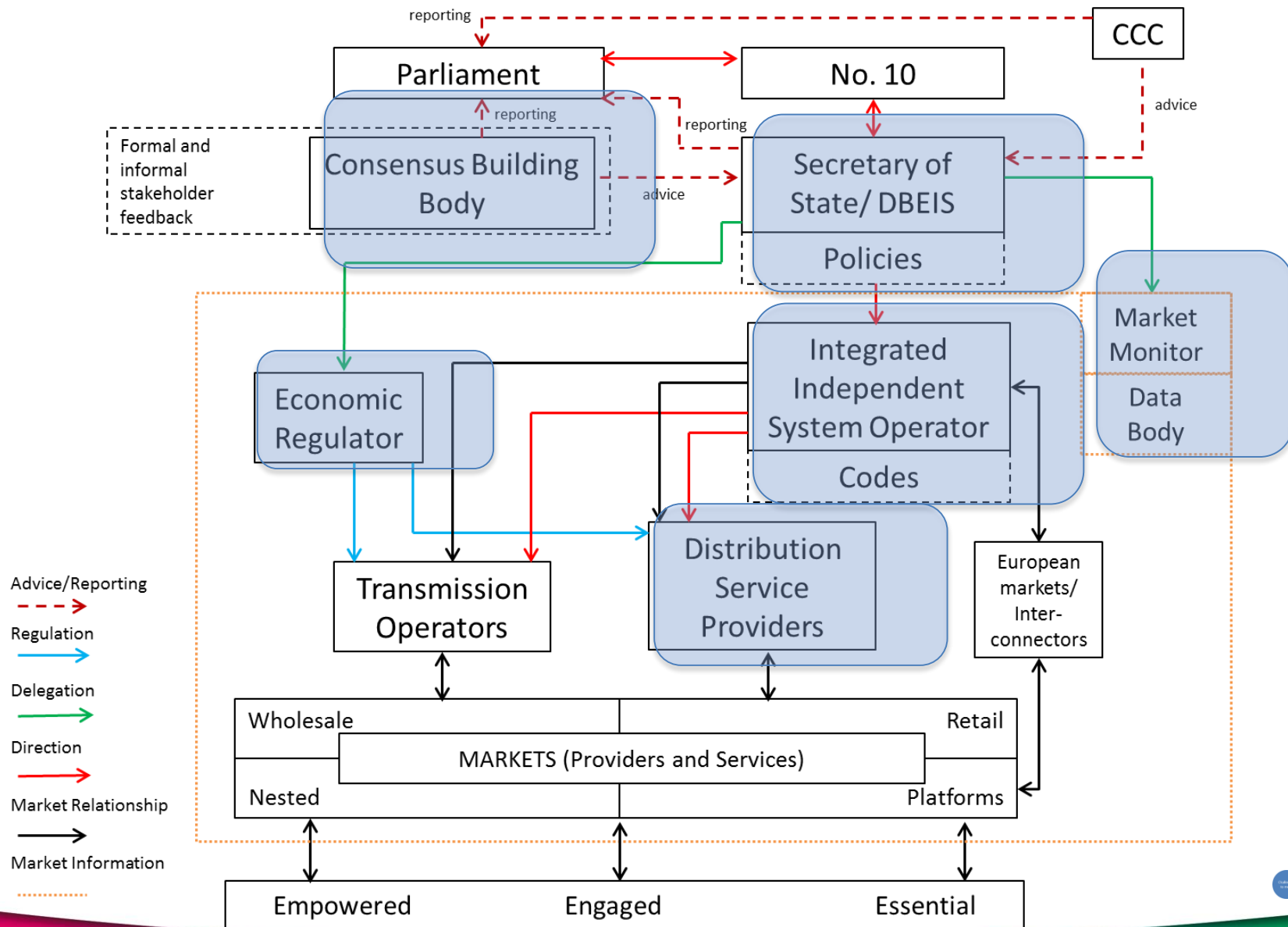
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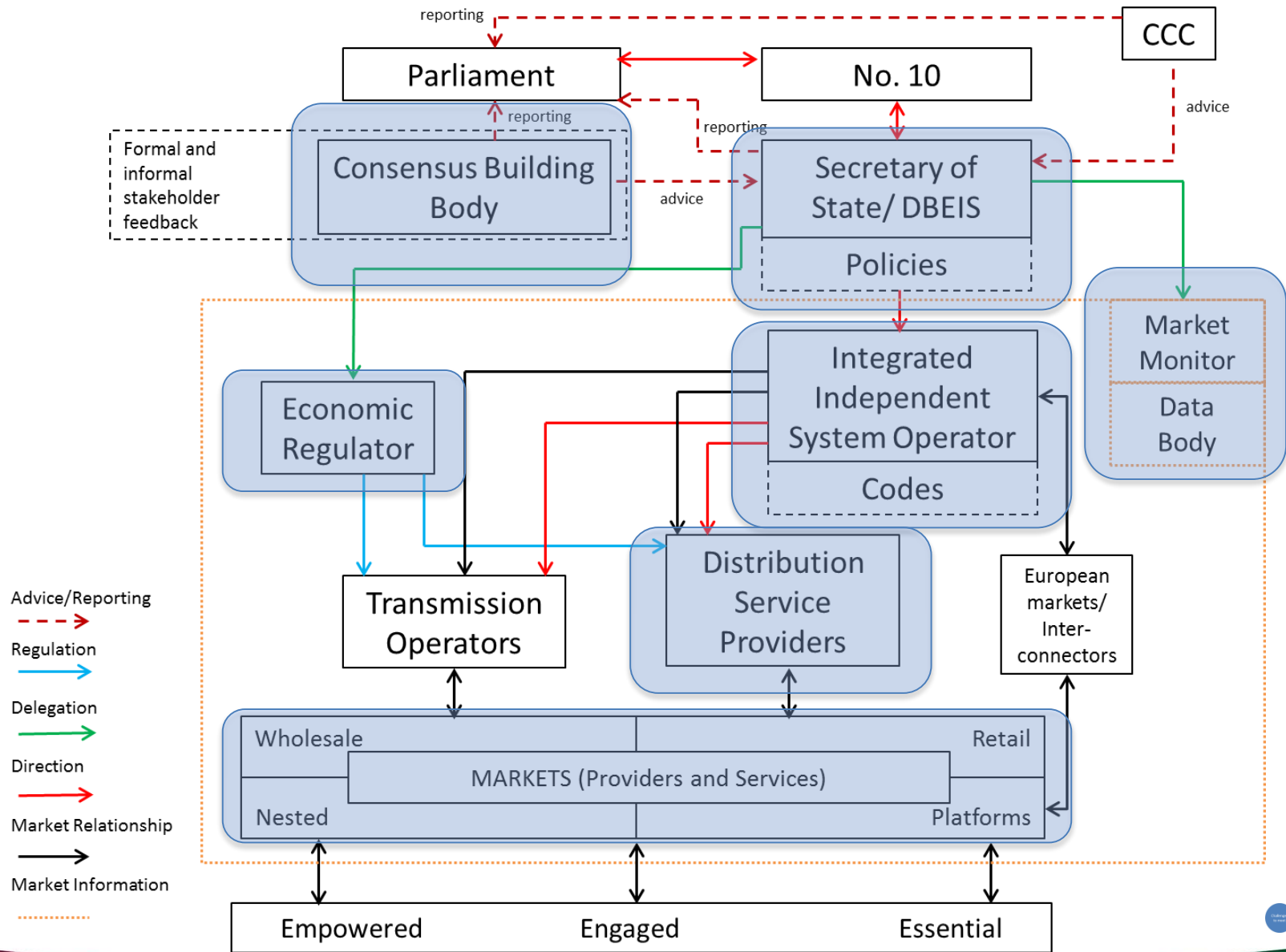
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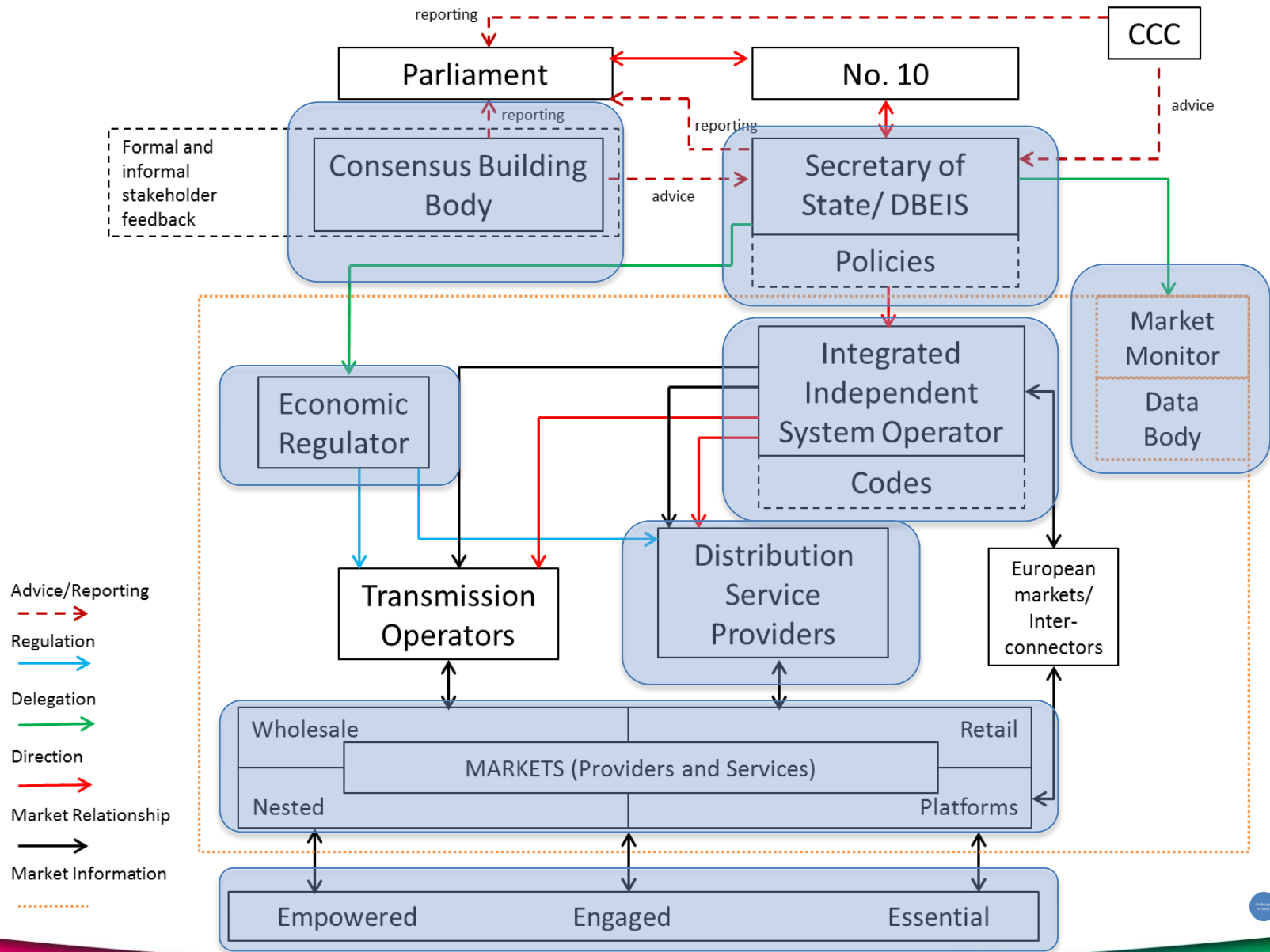
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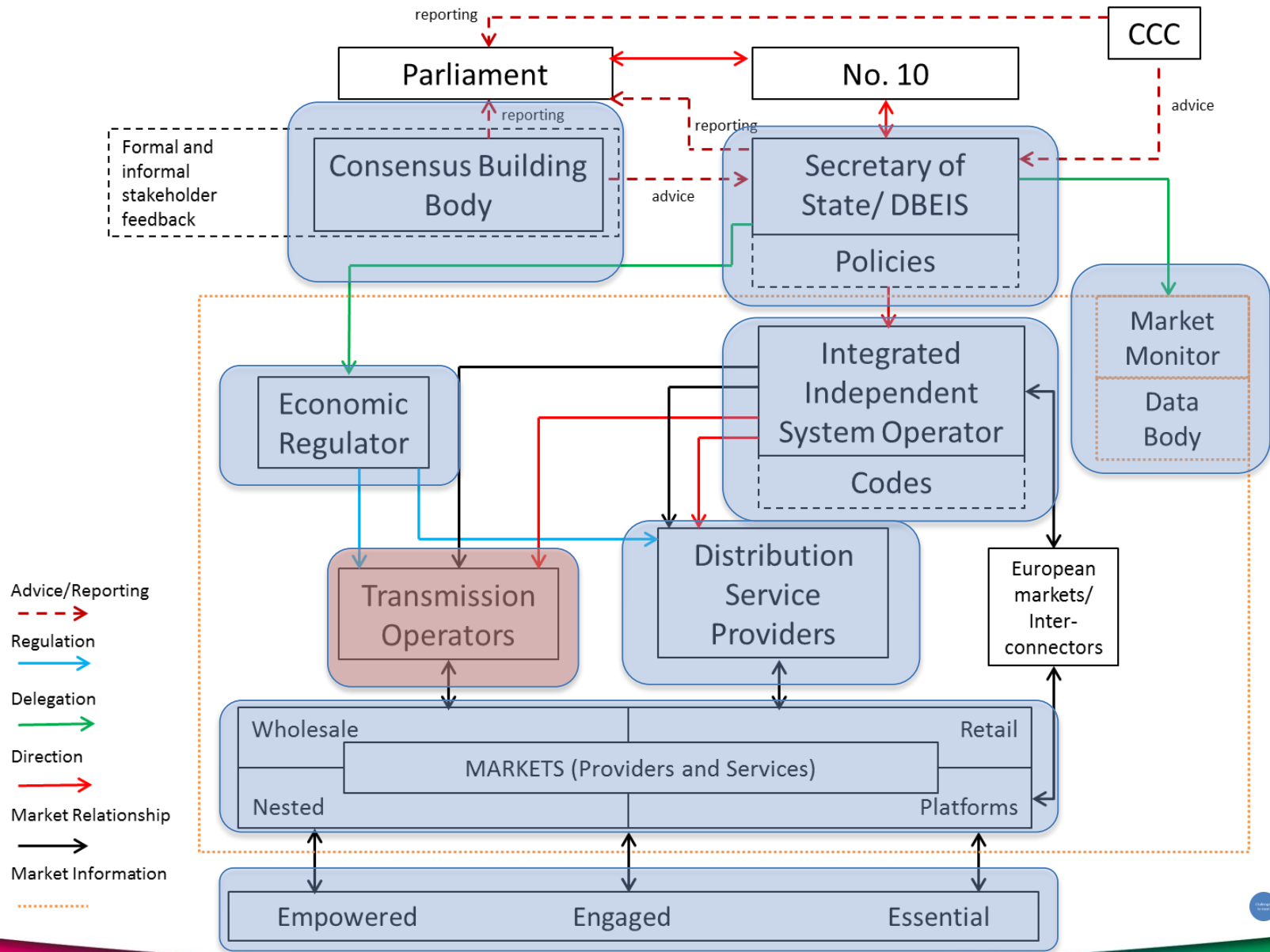
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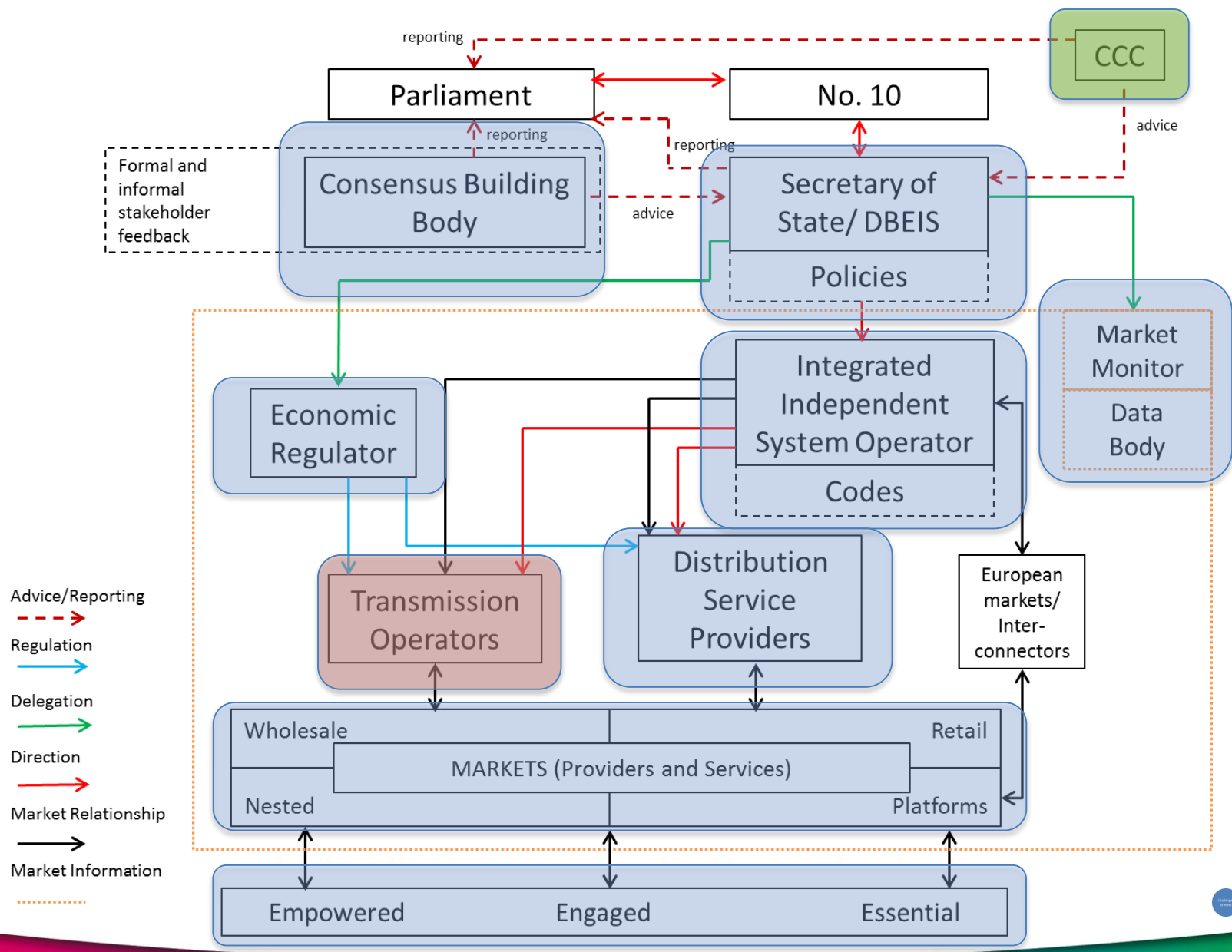
Fit-for-Purpose GB Energy Governance Framework



Fit-for-Purpose GB Energy Governance Framework



Fit-for-Purpose GB Energy Governance Framework



Links / References (1):

- Our fit-for-purpose governance framework document:
<http://projects.exeter.ac.uk/igov/paper-gb-energy-governance-for-innovation-sustainability-and-affordability-2/>
- Our submission to flexibility call :
<http://projects.exeter.ac.uk/igov/submission-beisofgem-smart-flexible-energy-system-a-call-for-evidence/>
- Please see our annual Advisory Group power points – they provide updates

Links / References (2)

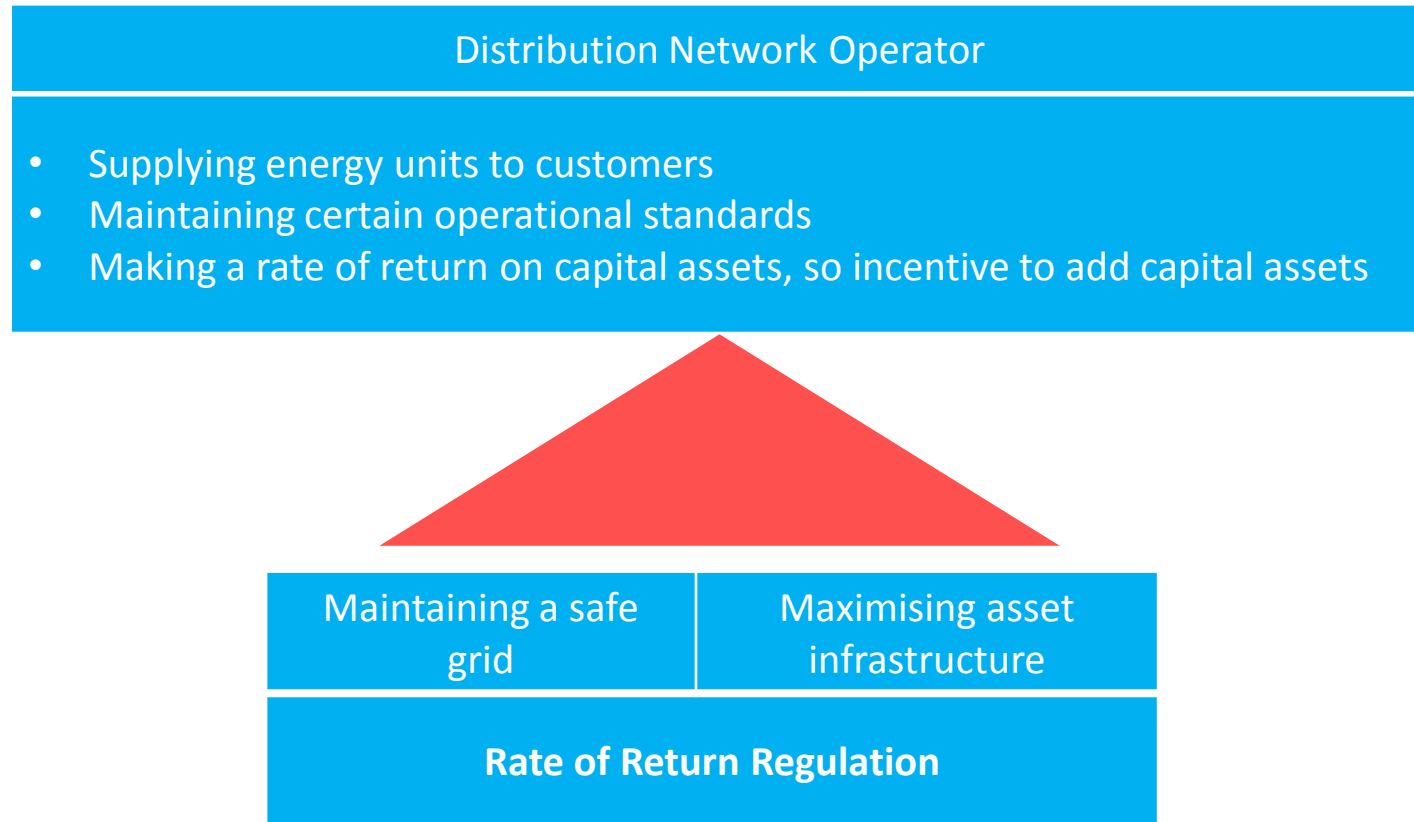
- [A 6 part series on New York versus California regulation](#)
 - <http://projects.exeter.ac.uk/igov/comparing-nys-and-ca-blog-1-series-overview/>
- Reset the reset (3 blog series)
<http://projects.exeter.ac.uk/igov/new-thinking-reset-the-reset-1-we-need-institutional-governance-reform-and-we-need-it-now/>
- Overview of RIIO Review
<http://projects.exeter.ac.uk/igov/new-thinking-the-riio-edi-review-just-how-successful-is-riio/>
- Argument for Ofgem to be reformed
<http://projects.exeter.ac.uk/igov/new-thinking-ofgem-has-to-be-reformed-if-gb-is-to-meet-its-energy-policy-goals/>

Links / References (3)

- See our DSP slidepack
<http://projects.exeter.ac.uk/igov/new-thinking-distribution-service-providers/>
- <http://projects.exeter.ac.uk/igov/new-thinking-transformational-regulation-comparing-the-ny-rev-riio/>
- <http://projects.exeter.ac.uk/igov/us-regulatory-reform-ny-utility-transformation/>

Appendix

What is a traditional distribution network utility?



Source: Adapted from CSIRO and Energy Networks Association 2015, Electricity Network Transformation Roadmap: Interim Program Report

What is a Distribution Service Provider?

Distribution Service Provider

- Integrating all types of DER via increased system and energy efficiency
- Enabling customers to provide and be paid for services to D-grid
- Facilitating services between 3rd party providers and customers
- Reveal value
- Becoming 'active'



| | | | | | | |
|-------------------------------------|------------------------------|---------------------------|--------------------------------|--|---|--------------------------|
| Maintaining a safe & resilient grid | Increasing system efficiency | Optimising infrastructure | Support/enable public policies | Enabling highly reliable & resilient energy services | Bring forward cost-effective ways of achieving outcomes | Provide transparent data |
|-------------------------------------|------------------------------|---------------------------|--------------------------------|--|---|--------------------------|

Higher proportion of Performance Based Regulation to Revenue

Source: Adapted from CSIRO and Energy Networks Association 2015, Electricity Network Transformation Roadmap: Interim Program Report

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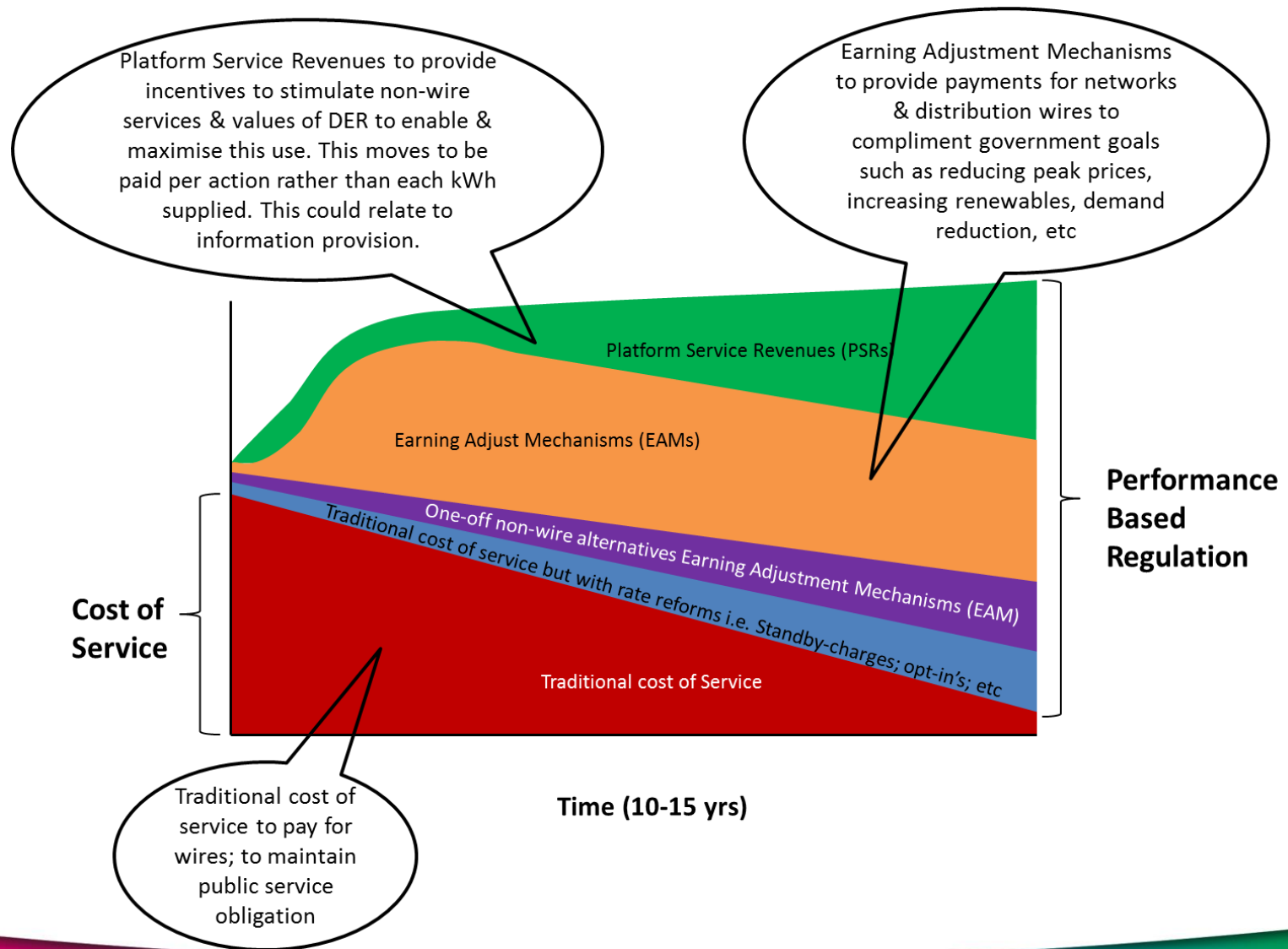
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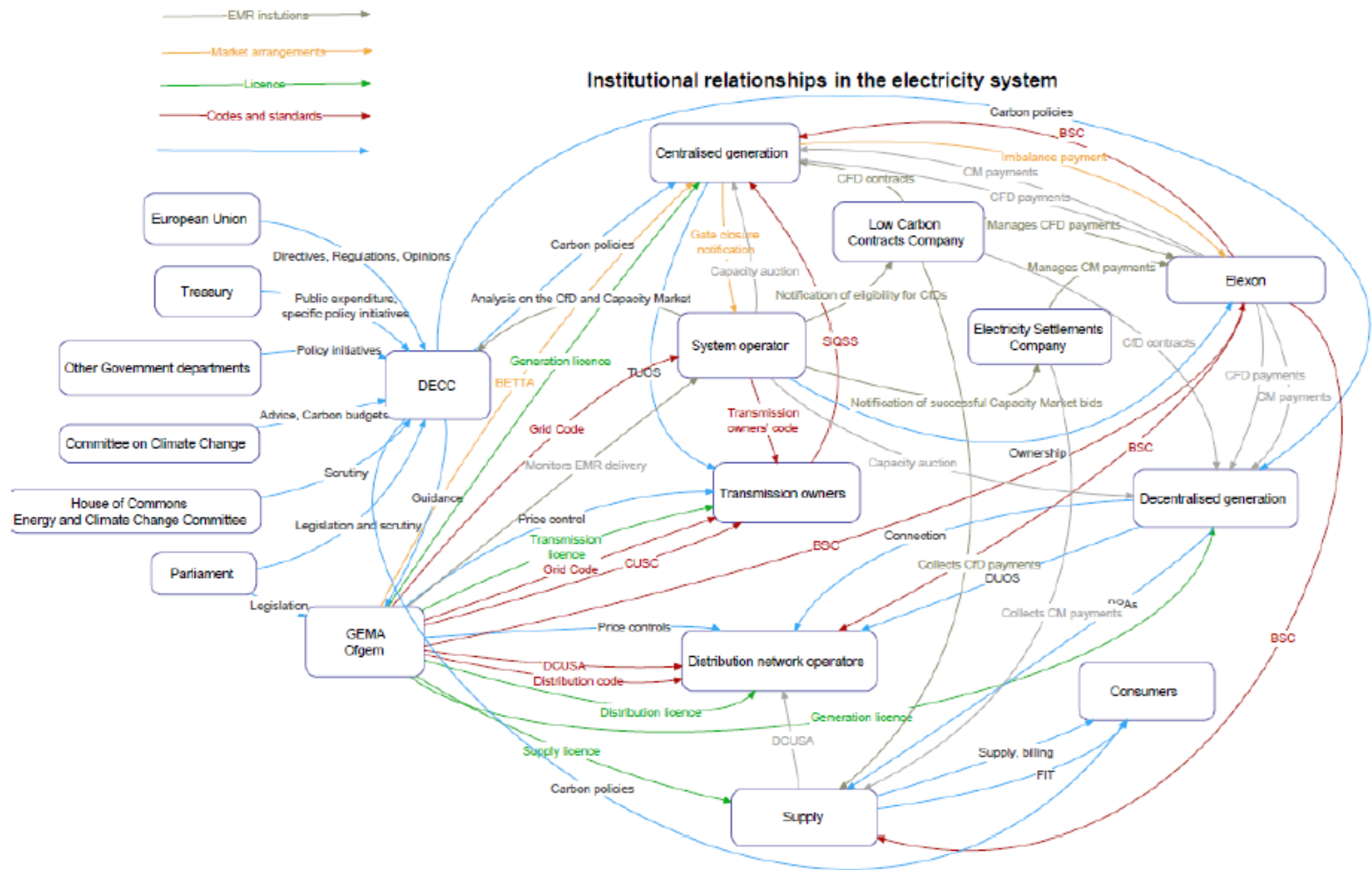
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Performance Based Regulation & Change



Current GB Governance System



Source: Woodman, 2015 <https://blogs.exeter.ac.uk/energy/2014/11/12/mapping-the-power-in-the-electricity-system/>

Specific GB problems to solve

Problems to do with transparency & legitimacy

Lack of transparency in policy making

Perceived risk of short term 'political' policy change

Problems to do with current institutions

Ofgem ill-suited to rapid system change, regulation lagging change

Self-regulation leads to inertia

BEIS policy decision de facto delegated to other bodies and not directed to desired outcomes

End users viewed as passive consumers, within sectors

Uncoordinated decision making

Problems to do with operation

Poor access to data

Uncoordinated & directionless system change

SO focuses on T rather than integrated T & D across vectors

Value/payments in system reflect conventional system

Lacking

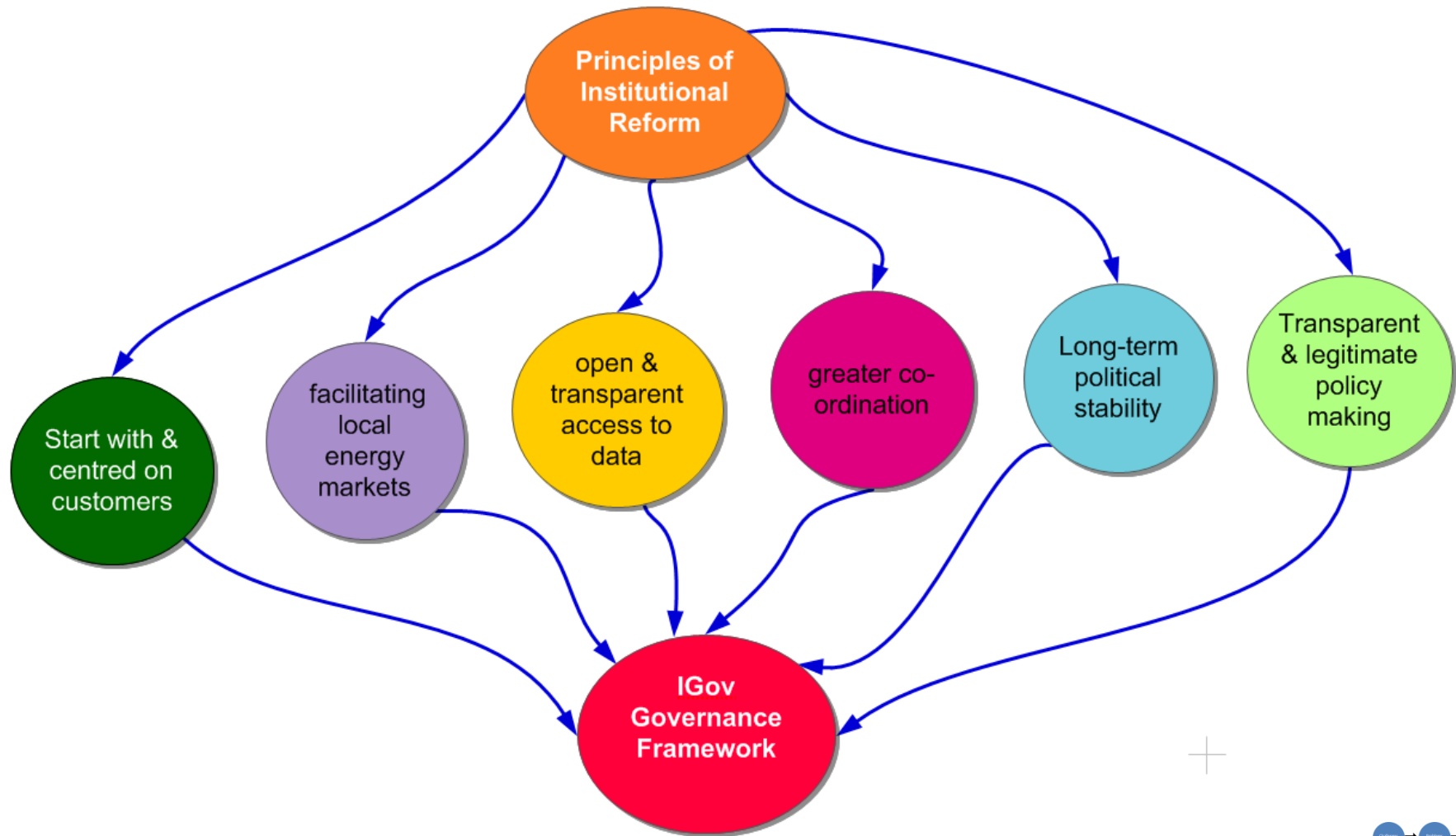
A way to incorporate CCC budgets across institutions

A means to coordinate value of DER & local markets

A place for discussion and consensus building



Principles of Institutional Reform



Matching principles to institutional reform within the IGov Framework

Principles of Institutional Reform

| |
|--|
| Energy system centred on customers |
| Facilitating local energy markets |
| Open and transparent access to data |
| Greater Coordination |
| Long-term political stability |
| Transparent and legitimate policy-making |



Institutional solutions & reform

| |
|--|
| DSPs, local energy markets, bottom-up optimisation via DSPs & IISO |
| DSPs |
| Data Body, Market Monitor |
| Consensus Building Body, IISO, BEIS taking decisions, Economic Regulator, DSPs |
| Consensus Building Body |
| Greater coherence of decision-making & less delegation from BEIS |



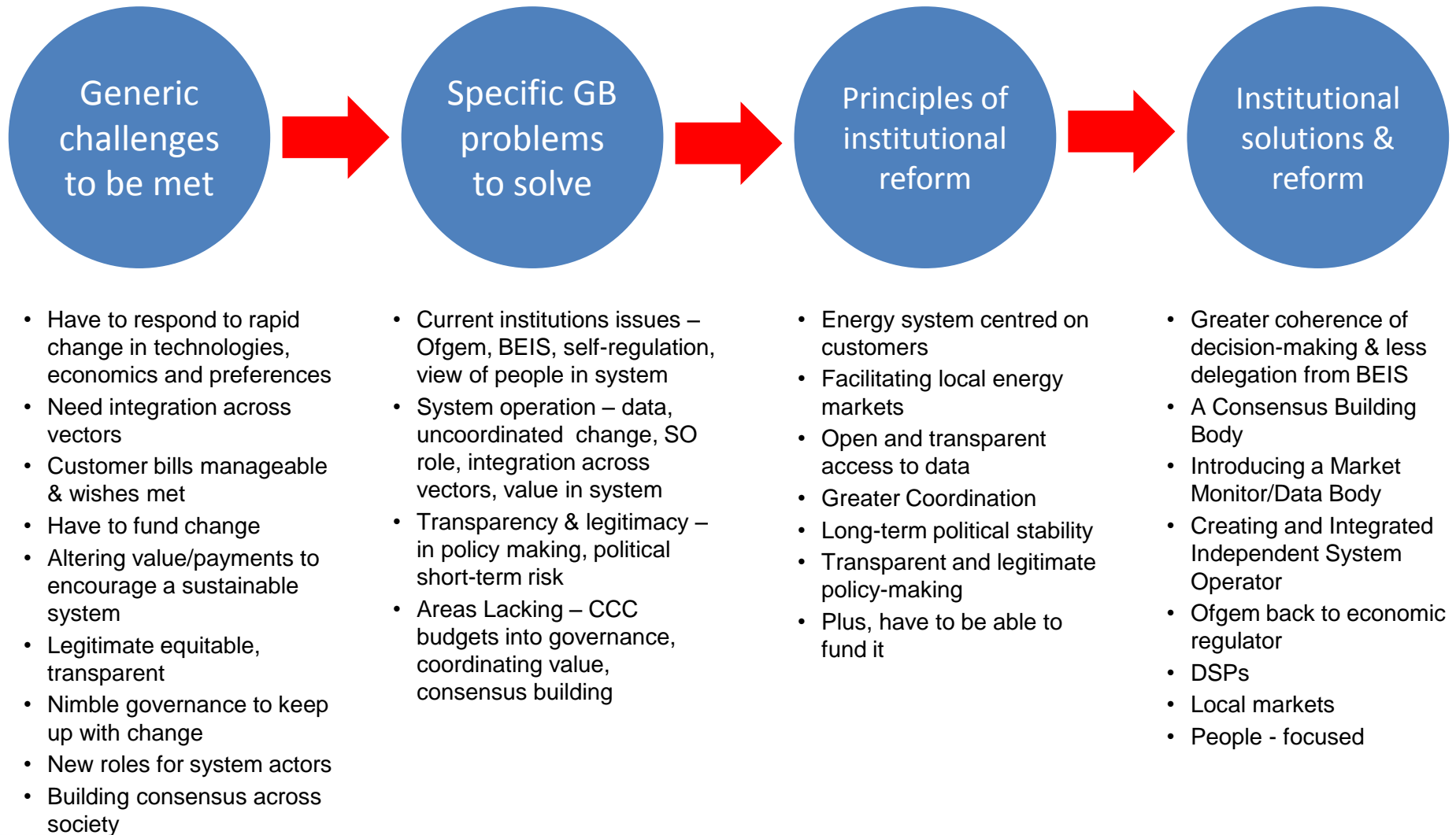
Examples of International decentralised markets

| Developed World but still within conventional wholesale market paradigm | Developed World but new institutionalised distribution / local market | Developing World |
|---|--|------------------|
| Apps | NYS | Eg Mobisol |
| Platforms | | Eg Solarkiosk |
| Some P2P – still rare on ground (ie Buffelton Sep 2016 Australia, PowerLedger) but some developing LO3 in NY) | P2P LO3 in NYS (no money passed yet) | |
| Very occasionally demand side at local level | | |
| Community Choice Aggregation / Muni's (sometimes owning the wires) | Amazon, Google more likely in this market structure | |
| There are demand side electricity new business models but not as yet decentralised | Decentralised demand side AND integrated with heat and EV more likely in this market | |

Steps to have DSPs in GB

- Need to have regulated distribution energy resource plans (DSPs) to find out the value of DER
 - This occurs in CA, NYS, and many other States now moving to find value of DER
 - Please see reset the reset blog series
<http://projects.exeter.ac.uk/igov/new-thinking-reset-the-reset-1-we-need-institutional-governance-reform-and-we-need-it-now/>
- More difficult - requires new type of regulation (performance based / ambition driven)
 - RIIO have structural flaws
 - Ofgem and BEIS appear complacent and ineffectual

Summary



Thankyou

For more information, please go
to the IGov website

<http://projects.exeter.ac.uk/igov/>