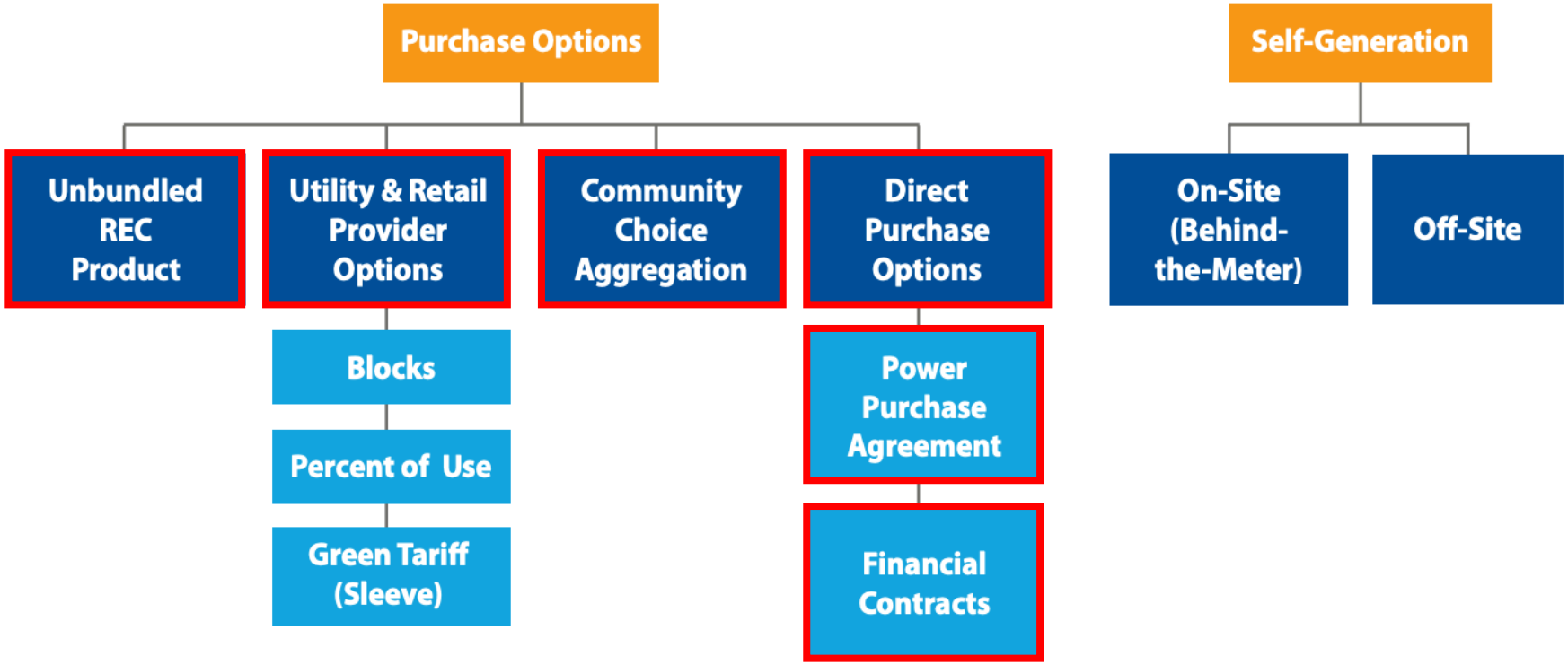
About Center for Resource Solutions

Nongovernmental Organization (NGO) creating policy and market solutions to advance sustainable energy since 1997.

- Green-e® certification for suppliers and users of renewable energy and carbon offsets in the voluntary market
- Renewable energy and climate policy
- Expert assistance
- Renewable Energy Markets annual conference

Green Power Product Options

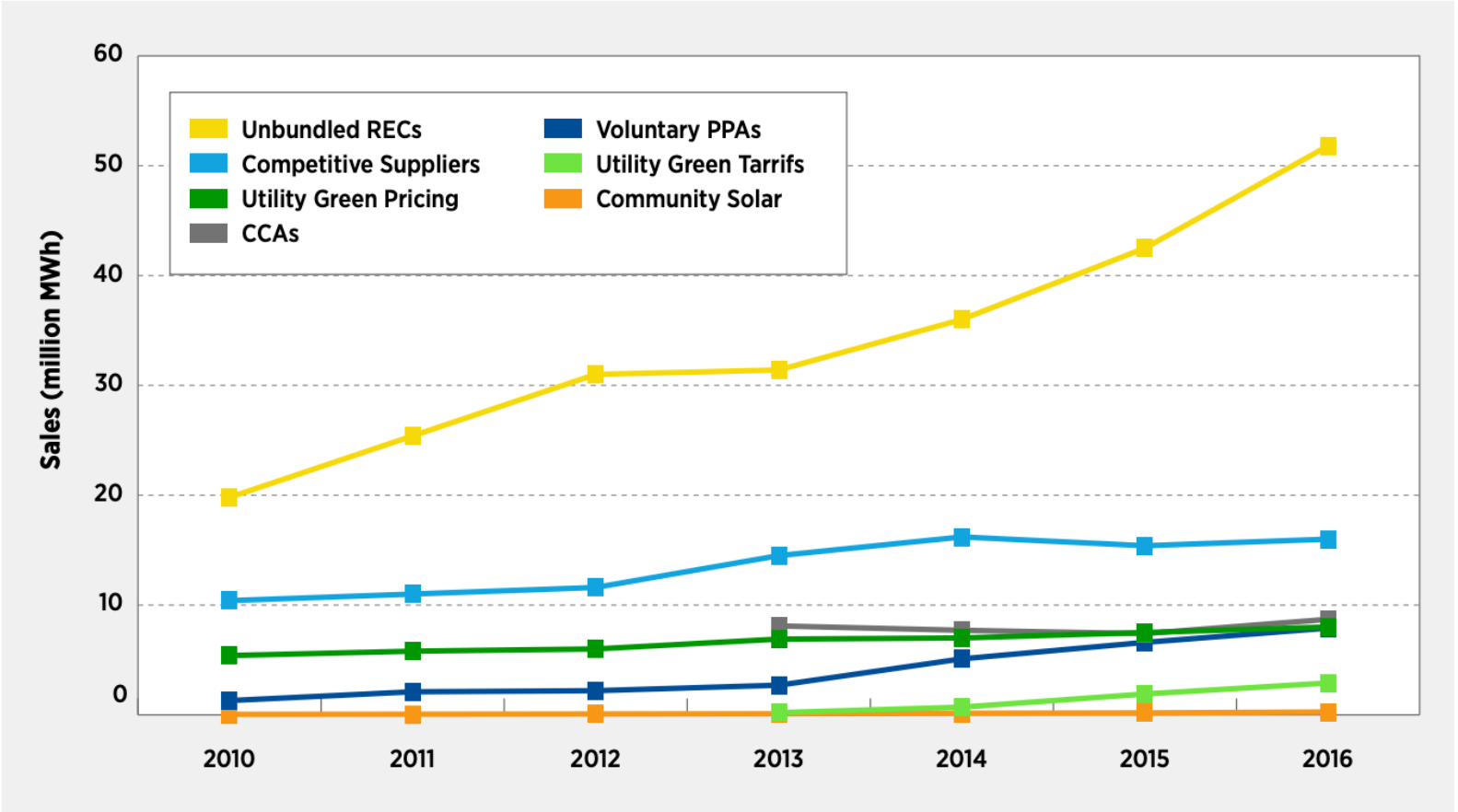
Figure 4-1. Voluntary Green Power Supply Options



RECs are required for all options.

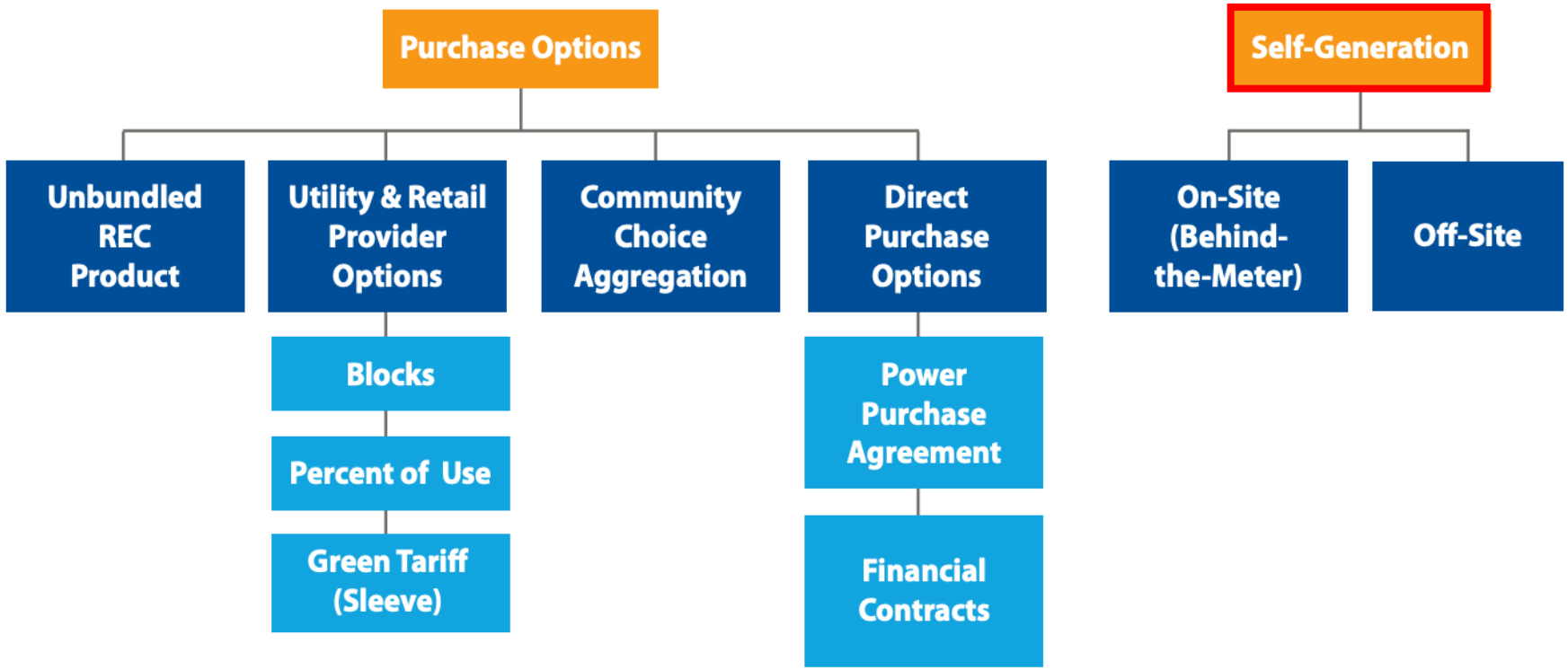
Green Power Product Options

Figure 4-2. Green Power Sales from 2010 to 2016[2]



Green Power Product Options

Figure 4-1. Voluntary Green Power Supply Options



RECs are required for all options.

Green Power Product Options

Table 4-2. Summary of Supply Options[3]

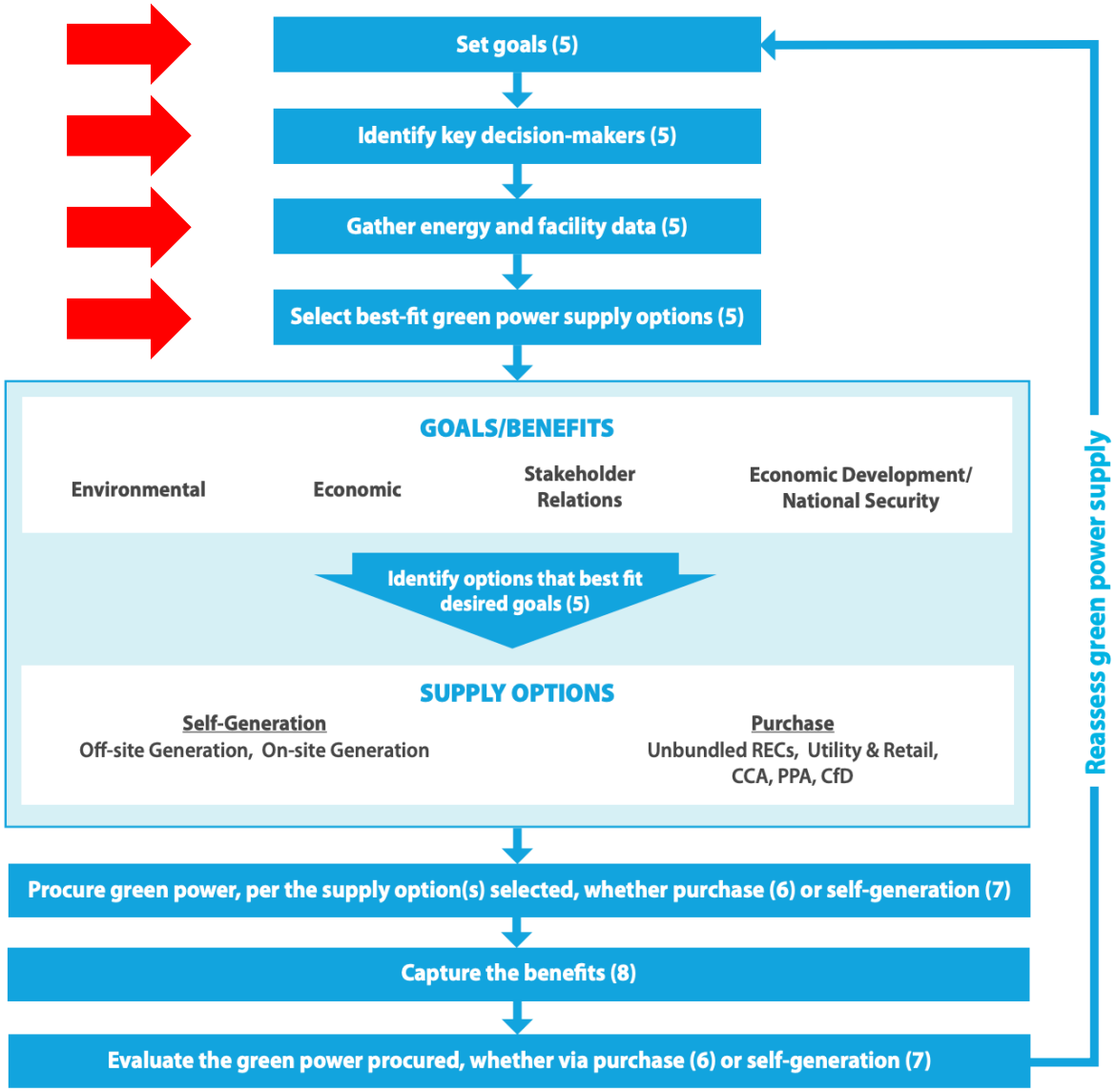
Supply Option	Unbundled REC Products	Utility Supply Options	Community Choice Aggregation	Physical Power Purchase Agreements	Financial PPAs / Contract for Differences	On-site Self Generation	Off-site Self Generation
Upfront Capital Investment	None	None	None	None	None	$$-$$$	$$-$$$$
Ongoing Expenditures Relative to Incumbent Electricity Option	Cost premium	Cost premium; tariff may offer savings	Varies	Cost savings over life of contract	Cost savings over life of contract	Cost savings over life of project	Cost savings over life of project
Term of Commitment	Varies; significant flexibility	Monthly; multiyear for green tariff	Consumer opt-out provision	Multiyear	Multiyear	Operational life of installed technology	Operational life of installed technology
Transaction Complexity	✪	✪	✪	✪✪✪	✪✪✪✪✪	✪✪✪	✪✪✪✪
Transaction Includes	RECs only	RECs + Electricity	RECs + Electricity	RECs + Electricity delivery + fixed cost of electricity	RECs + Hedge against downside price risk	RECs* + Electricity + Generator	RECs* + Generator + Revenue from electricity sales

*Many smaller renewable energy projects are not formally issued RECs from regional tracking systems, but nonetheless still generate environmental attributes.

Selecting Options

- Goal setting
- Organizational considerations
- Gathering data
- Aligning options and goals

Figure 5-1. Steps for Selecting Green Power Supply Options Based on Organization Goals



Selecting Options

Screening suppliers

- Reputation
- Certification
- Financial strength
- Location
- Product choice
- CSR

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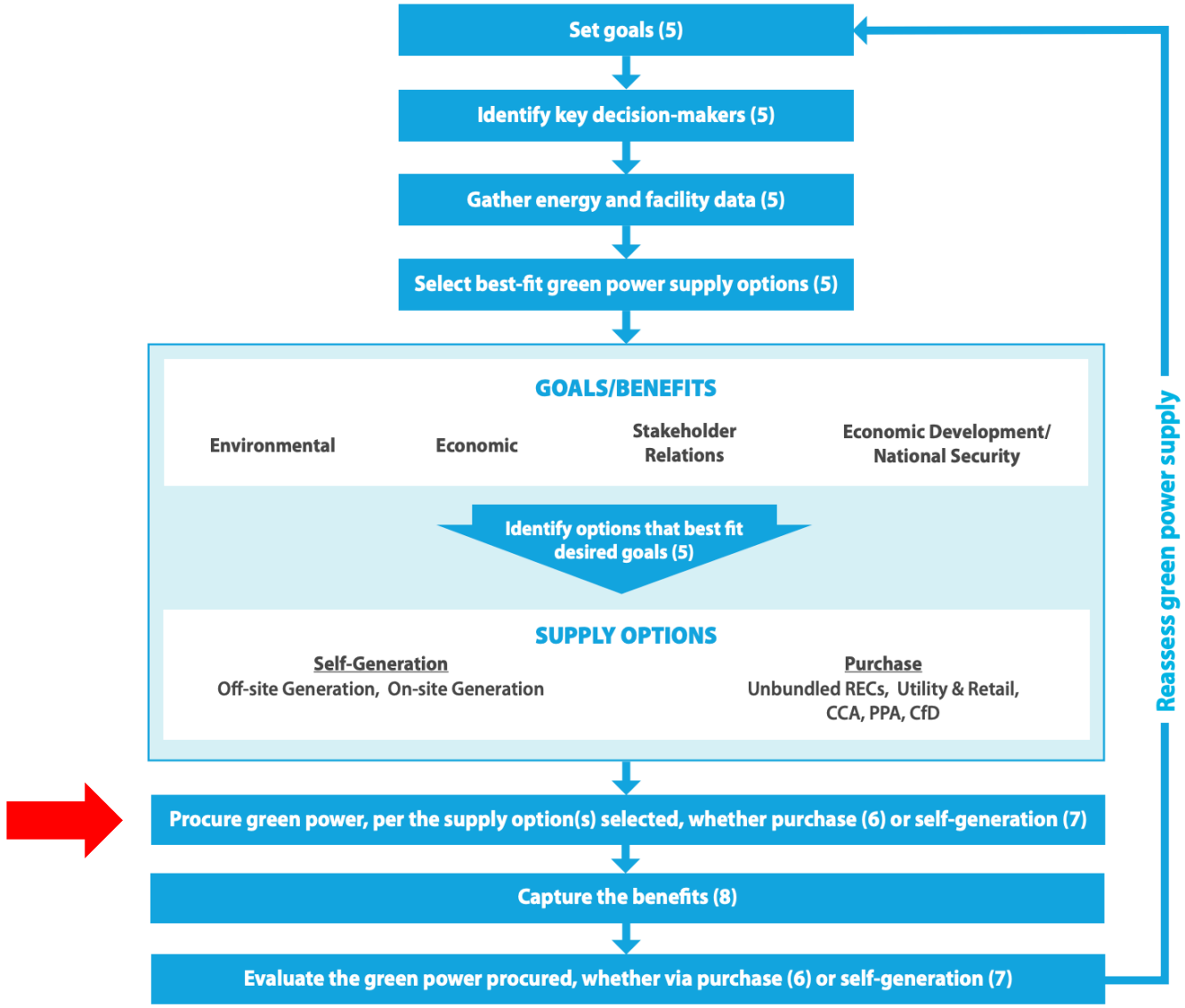

Selecting Options

Screening products

- Price
- Risk
- Percent RE
- Impact
- Percent “new”
- Resource type
- Contract length
- Certification
- Location of generation
- Specific facility
- Complexity

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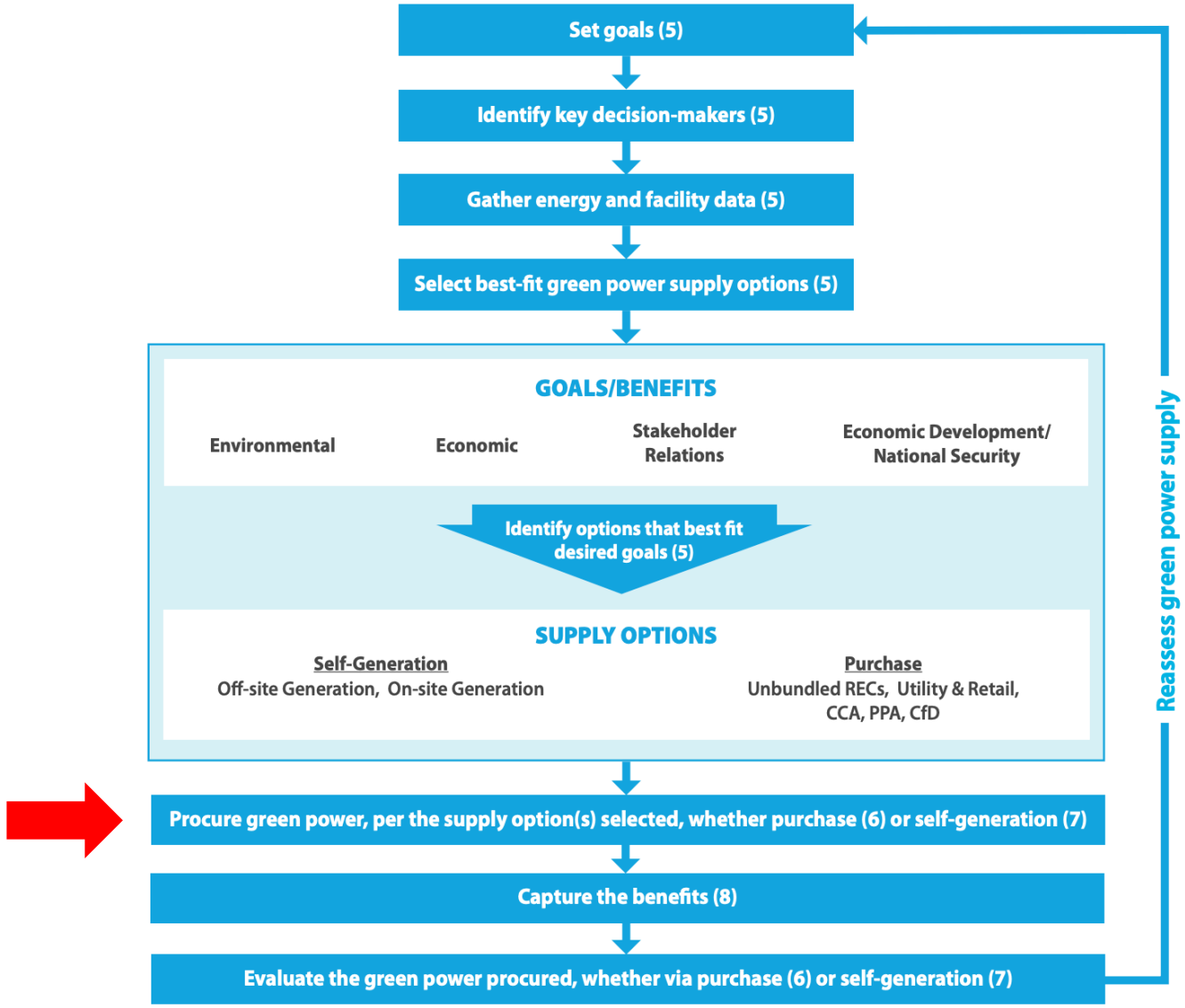
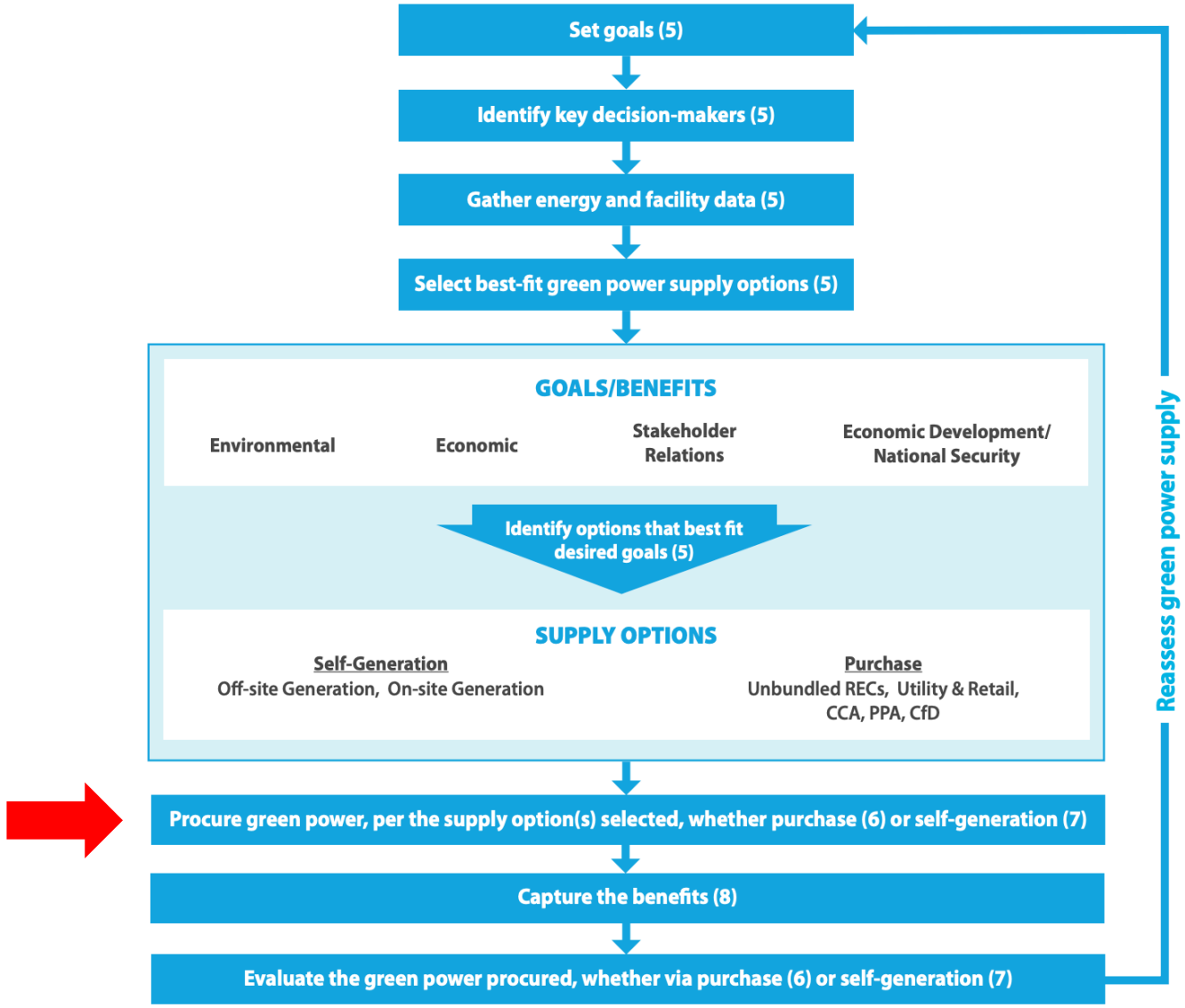


Selecting Options

Procurement planning

- Collecting information
- Estimating cost
- Procurement plan
  - Scope
  - Benefits
  - Financial considerations
  - Managing cost
  - Procurement methods
  - Contract considerations
  - Special considerations
  - Evaluation

Figure 5-1. Steps for Selecting Green Power Supply Options Based on Organization Goals



Capturing Benefits

Environmental benefits

- GHG emissions
  - Scope 2 accounting
  - Avoided emissions
- Green buildings certification

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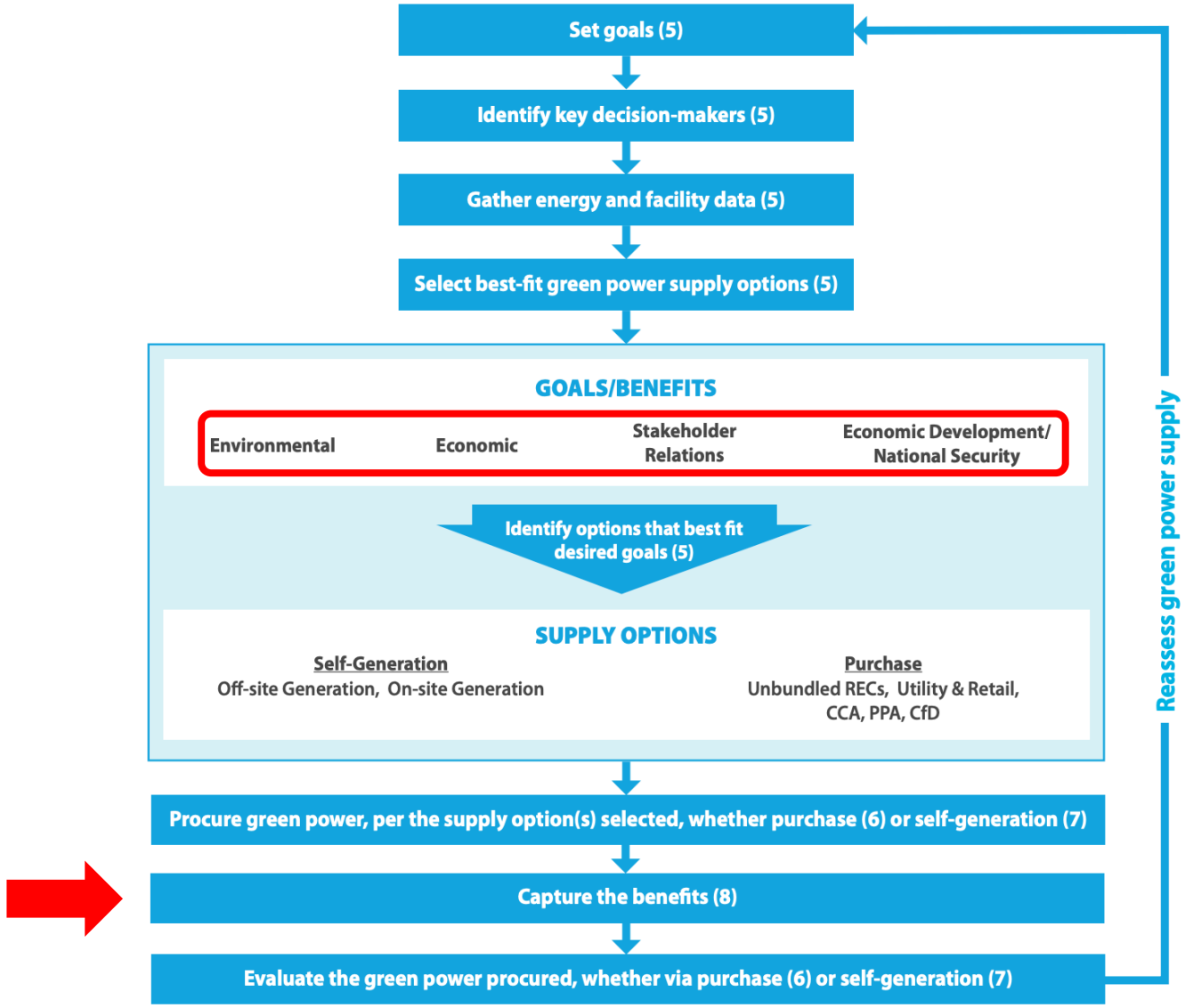

Capturing Benefits

Scope 2 Accounting

Activity Information	
Location of electricity consumption: Dayton, OH eGRID subregion: RFC West A. Total Electricity Consumption = 100 MWh B. Nebraska Wind RECs Purchased = 95 MWh	
Market-based Scope 2 Emissions	**Location-based Scope 2 Emissions**
C. Adjusted Consumption = 5 MWh (A - B) D. Residual Mix Greenhouse Gas Emission Rate for RFC = 1,248.99 lbs/MWh*	F. Regional grid average emissions factor for RFC West: 1,386.55 lbs/MWh**
Market-based Scope 2 Emissions = **2.8 tCO2e** (C * D / 2204.62)	Location-based Scope 2 Emissions = **62.9 tCO2e** (A * F / 2204.62)

*Available from Green-e
**Available from EPA's eGRID database

Capturing Benefits

Avoided emissions accounting

Activity Information
Location of electricity consumption: Dayton, OH eGRID subregion: RFC West A. Total Electricity Consumption = 100 MWh B. Nebraska Wind RECs Purchased = 95 MWh
Supplemental Report of Avoided Grid Emissions
E. Non-baseload Greenhouse Gas Emission Rate for Nebraska (MRO West) = 1965.21 lbs/MWh**
Avoided Grid Emissions = **84.7 tCO2e** (B * E / 2204.62)

**Available from EPA's eGRID database

Communicating Benefits

Internal

External

- Legitimate vs. deceptive claims
- Best practices
  - Retain and retire RECs
  - Not counted towards a mandate
  - Buy certified
  - Match scope and vintage of purchase
  - Indirect emissions (Scope 2) claims only
  - Avoid claims about capped emissions
  - Use RECs and offsets correctly
  - Avoid “additionality,” but talk about impact (see *Describing Purchaser Impact in U.S. Voluntary Renewable Energy Markets*)
- Purchaser programs (e.g. Green-e)

Questions?

Guide to Purchasing Green Power

https://www.epa.gov/greenpower/guide-purchasing-green-power

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EPA GREEN POWER PARTNERSHIP